Appendix J

Appendix for Transportation

Appendix J.1

Transportation Assessment

TRANSPORTATION ASSESSMENT FOR THE ANGELS LANDING PROJECT

LOS ANGELES, CALIFORNIA

MAY 2020

PREPARED FOR

ANGELS LANDING PARTNERS, LLC

PREPARED BY

Gibson
transportation consulting, inc.

TRANSPORTATION ASSESSMENT
FOR THE
ANGELS LANDING PROJECT

LOS ANGELES, CALIFORNIA

May 2020

Prepared for:

ANGELS LANDING PARTNERS, LLC

Prepared by:

GIBSON TRANSPORTATION CONSULTING, INC.
555 W. 5th Street, Suite 3375
Los Angeles, California 90013
(213) 683-0088

Ref: J1630

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Chapter 1
Introduction

This study presents the transportation assessment for the proposed Angels Landing project (Project) located generally at 361 South Hill Street (Project Site) within the *Central City Community Plan* (Los Angeles Department of City Planning [LADCP], September 2016) and *Bunker Hill Specific Plan* (The Community Redevelopment Agency of the City of Los Angeles, California [CRA/LA], July 2013) (Specific Plan) areas of the City of Los Angeles, California (City). The methodology and base assumptions used in the analysis were established in conjunction with the Los Angeles Department of Transportation (LADOT).

PROJECT DESCRIPTION

The Project proposes to construct a total of 432 multi-family high-rise units, including 252 apartment units and 180 condominium units, 515 hotel rooms within two buildings, and approximately 72,090 square feet (sf) of commercial space, which may ultimately include cultural/civic spaces. Parking would be provided on-site in a three-level subterranean parking garage, with access driveways along Olive Street and 4th Street. Pedestrian access to the Project would be provided along Olive Street, 4th Street, and Hill Street. The Project Site is currently mostly landscaped and vacant, with the exception of the Los Angeles County Metropolitan Transportation Authority (Metro) B (formerly known as Red) and D (formerly known as Purple) Lines Pershing Square Station portal (Metro portal) located at the southeast corner of the Project Site and the publicly accessible stairway adjacent to the historic Angels Flight funicular railway on the northern boundary of the Project Site. Both the Metro portal and the stairway to Angels Flight will be maintained on-site, subject to enhancements implemented by the Project.

The Project is anticipated to be completed in Year 2028. The ground floor and terrace site plans are provided in Figures 1A and 1B.

PROJECT LOCATION AND STUDY AREA

As shown in Figure 2A, the Project Site, contained within Assessor Parcel Number 5149010951, is located in the Bunker Hill area of downtown Los Angeles, within City Council District 14. The Project is bounded by Angels Flight to the north, Hill Street to the east, 4th Street to the south, and Olive Street and California Plaza to the west. Access will be provided from Olive Street and 4th Street.

The Project is located approximately 0.45 miles east of the Harbor Freeway (I-110/SR 110). The Project sits atop the Metro portal, thereby providing direct access from mass transit to the Project Site. The Project is also served by numerous transit lines primarily along Olive Street, Hill Street, Broadway, and 5th Street that are operated by Metro, LADOT Downtown Area Shuttle (DASH), LADOT Commuter Express (CE), Foothill Transit, Torrance Transit, and Montebello Bus Lines. In addition, the Project is adjacent to Angels Flight, a historic funicular railway that provides connection between Hill Street and Olive Street and California Plaza, a heavily utilized pedestrian area offering views, food, and outdoor venues.

STUDY SCOPE

The scope of analysis for this study was developed in consultation with LADOT and is consistent with *Transportation Assessment Guidelines* (LADOT, July 2019) (TAG) and in compliance with the California Environmental Quality Act (CEQA) Guidelines. The base assumptions and technical methodologies (i.e., trip generation, study locations, analysis methodology, etc.) were identified as part of the study approach and were outlined in a Memorandum of Understanding (MOU) that was reviewed and approved by LADOT in January 2020 and is provided in Appendix A.

ORGANIZATION OF REPORT

This report is divided into five chapters, including this introduction. Chapter 2 describes the Project context including the existing and future circulation system, traffic volumes, and traffic conditions in the Study Area. Chapter 3 presents the CEQA analysis of transportation impacts. Chapter 4 details the non-CEQA transportation analyses. Chapter 5 summarizes the analyses and study conclusions. The appendices contain supporting documentation, including the MOU that outlines the study scope and assumptions, and additional details supporting the technical analyses.

Source: Handel Architects, LLP. May, 2020.

PROJECT SITE PLAN
LOWER PORTE COCHERE

FIGURE 1A

Source: Handel Architects, LLP. May, 2020.

PROJECT SITE PLAN
ANGELS TERRACE

FIGURE
1B

PROJECT SITE LOCATION

FIGURE 2A

Chapter 2
Project Context

A comprehensive data collection effort was undertaken to develop a detailed description of existing and future conditions in the Study Area.

The Existing Conditions analysis includes an assessment of the existing transportation infrastructure and conditions of the Study Area including freeway and street systems and transit service, as well as pedestrian and bicycle circulation, at the time the Notice of Preparation was issued in 2019. An inventory of lane configurations, signal phasing, parking restrictions, etc., for the analyzed intersections was also collected. Traffic count worksheets are provided in Appendix B.

In addition, this Chapter contains a discussion of the future conditions detailing the assumptions used to develop the Future without Project Conditions in Year 2028, which corresponds to expected occupancy of the Project.

STUDY AREA

The Study Area includes key intersections along Olive Street, Hill Street, and Broadway, as well as the transportation infrastructure described below. This Study Area was established in consultation with LADOT based on the following factors identified in the TAG:

1. Primary driveway(s)
2. Intersections at either end of the block on which the Project is located or up to 600 feet from the primary Project driveway(s)
3. Unsignalized intersections adjacent to the Project Site that are integral to the Project's site access and circulation plan
4. Signalized intersections in proximity to the Project Site where 100 or more Project trips would be added

As listed in Table 1, a total of 10 signalized study intersections were identified for detailed analysis during the MOU process. Figure 2B illustrates the Study Area and the 10 study intersections. The existing lane configurations at the analyzed intersections are provided in Figure 3.

EXISTING TRANSPORTATION CONDITIONS

Existing Street System

The existing street system in the Study Area consists of a regional roadway system including arterials and local streets that provide regional, sub-regional, or local access and circulation to the Project. These transportation facilities generally provide two to four travel lanes and usually allow parking on one or both sides of the street. Typically, the speed limits range between 25 and 35 miles per hour (mph) on the streets and 55 mph on the freeways surrounding downtown.

Street classifications are designated in *Mobility Plan 2035, An Element of the General Plan* (LADCP, September 2016) (the Mobility Plan). The Mobility Plan defines specific street standards in an effort to provide an enhanced balance between traffic flow and other important street functions including transit routes and stops, pedestrian environments, bicycle routes, building design and site access, etc. The Mobility Plan defines street classifications are defined as follows:

- <u>Boulevards</u> represent the widest arterial streets that typically provide regional access to major destinations and include two categories:
  - <u>Boulevard I</u> provides up to four travel lanes in each direction with a target operating speed of 40 mph and generally includes a right-of-way width of 126 feet and pavement width of 102 feet.
  - <u>Boulevard II</u> provides up to three travel lanes in each direction with a target operating speed of 35 mph, with right-of-way widths varying from 104-110 feet and pavement widths from 70-80 feet.
- <u>Avenues</u> are narrower arterial streets which pass through both residential and commercial areas and include three categories:
  - <u>Avenue I</u> provides up to two travel lanes in each direction with a target operating speed of 35 mph, with a right-of-way width of 100 feet and pavement width of 70 feet.

- Avenue II provides up to two travel lanes in each direction with a target operating speed of 30 mph, with a right-of-way width of 86 feet and pavement width of 56 feet.

- Avenue III provides up to two travel lanes in each direction with a target operating speed of 25 mph, with a right-of-way width of 72 feet and pavement width of 46 feet.

- Collector Streets are generally located in residential neighborhoods and provide access to and from arterial streets for local traffic and are not intended for cut-through traffic. They provide one travel lane in each direction with operating speed of 25 mph, with right-of-way width generally at 65 feet and pavement width of 44 feet.

- Local Streets are intended to accommodate lower volumes of vehicle traffic and provide parking on both sides of the street. They provide one travel lane in each direction with a target operating speed of 15 to 20 mph. Pavement widths will vary between 30-36 feet within a right-of-way width of 50-60 feet. Local Streets include two categories:
  - Continuous Local Streets connect to other streets at both ends
  - Non-continuous Local Streets lead to a dead-end

Primary regional access to the Project Site is provided by SR 110, located 0.45 miles west of the Project Site and outside of the Study Area. In proximity to the Project Site, the Study Area is served by arterial streets such as Olive Street, Hill Street, and 4th Street. The following is a brief description of the roadways in the Study Area, including their classifications under the Mobility Plan:

Freeways

- SR 110 – SR 110 generally runs in the north-south direction and is located approximately 0.45 miles west of the Project Site. In the vicinity of the Project Site, SR 110 provides three travel lanes in each direction. Access to and from SR 110 is available via interchanges at 3rd Street, 4th Street, and 5th Street within the Study Area.

Roadways

- Olive Street – Olive Street is a designated Modified Avenue II that runs in the north-south direction and is located adjacent to the western boundary of the Project Site. South of 5th Street, it generally provides three to four northbound travel lanes (one-way operation). North of 5th Street, it provides one to two southbound lanes and two to three northbound lanes within the Study Area. North of 5th Street, daytime two-hour metered parking is available on the east side of the street with afternoon peak hour restrictions within the Study Area. Between 5th Street and 6th Street, daytime metered parking is generally available on the west side of the street. South of 6th Street, daytime two-hour metered parking with afternoon peak hour restrictions is generally available on the west side of the street within the Study Area.

- Hill Street – Hill Street is a designated Modified Avenue II that runs in the north-south direction and is located adjacent to the eastern boundary of the Project Site. It generally provides four travel lanes, two lanes in each direction, with left-turn lanes at major intersections. Daytime two-hour and four-hour metered parking is generally available with morning peak hour restrictions on the west side of the street and afternoon peak hour restrictions on the east side of the street south of 2nd Street within the Study Area. Parking is generally not allowed north of 2nd Street within the Study Area.

- Broadway – Broadway is a designated Modified Avenue II that runs in the north-south direction and is located east of the Project Site. It generally provides three travel lanes, two northbound and one southbound, with left-turn lanes at intersections. Daytime two-hour metered parking is generally available on the east side of the street north of 3rd Street within the Study Area. Daytime two-hour metered parking is generally available on both sides of the street south of 3rd Street within the Study Area. Bicycle sharrows are provided on Broadway south of 3rd Street.

- 2nd Street – 2nd Street is a designated Modified Avenue III that runs in the east-west direction and is located north of the Project Site. It generally provides two travel lanes, one lane in each direction, within the Study Area. Daytime two-hour metered parking with is generally available on the south side of the street east of Hill Street within the Study Area.

- 3rd Street – 3rd Street is a designated Modified Avenue III that generally travels one-way in the westbound direction and is located north of the Project Site. It generally provides two westbound travel lanes within the Study Area. Daytime two-hour metered parking with morning and afternoon peak hour restrictions is generally available on both sides of the street east of Hill Street within the Study Area. Daytime two-hour metered parking is generally available on both sides of the street between Hope Street and Grand Avenue within the Study Area.

- 4th Street – 4th Street is a designated Modified Avenue I between Grand Avenue and Olive Street, a Modified Avenue II between Olive Street and Hill Street, and a Modified Avenue III east of Hill Street. It generally travels one-way in the eastbound direction and is located along the southern boundary of the Project Site. It generally provides two to four eastbound travel lanes within the Study Area. Daytime two-hour metered parking is generally available on both sides of the street east of Hill Street within the Study Area. Daytime two-hour metered parking is generally available on the north side of the street between Grand Avenue and Hill Street. Parking is generally not available west of Grand Avenue.

- 5th Street – 5th Street is a designated Modified Avenue II west of Hill Street and a Modified Avenue III east of Hill Street. It generally travels one-way in the westbound direction and is located south of the Project Site. It generally provides four westbound travel lanes within the Study Area. Daytime two-hour metered is generally available on the north side of the street west of Main Street, and on both sides of the street west of Broadway. Within the Study Area, parking is not available on either side of the street west of Hill Street.

The existing intersection mobility facilities are shown in Figure 4 and the transportation facilities are shown in Figure 5.

Existing Transit System

Figure 6 illustrates the existing transit service in the Study Area, which is served by bus lines operated by Metro, LADOT DASH, LADOT CE, Foothill Transit, Santa Monica Big Blue Bus, Torrance Transit, and Montebello Bus Lines. In addition to the bus lines that provide service within the Project Site vicinity, the subway lines for the Metro B and D Lines operate along the Project Site. The Metro B Line runs between North Hollywood and downtown Los Angeles, the Metro D Line runs between Koreatown and downtown Los Angeles. The Metro portal is on the southeast corner of the Project Site.

Table 2 summarizes the various transit lines operating in the Study Area for each of the service providers in the region, the type of service (peak vs. off-peak, express vs. local), and frequency of service. The average headways during the peak hour were estimated using detailed trip and ridership data from April 2019 provided by Metro, as well as schedule information from each respective transit provider.

Tables 3A and 3B summarize the total capacity of the Metro transit system and LADOT bus lines during the morning and afternoon peak hours based on the frequency of service of each line and the maximum seated and standing capacity of each bus or train. As shown in Tables 3A and 3B, the Metro and LADOT bus lines within 0.25 miles walking distance of the Project Site currently provide additional capacity for 15,607 transit riders during the morning peak hour and 13,844 transit riders during the afternoon peak hour. Additionally, the Metro B and D Lines provide additional capacity for approximately 5,454 transit riders during the morning peak hour and 4,821 transit riders during the afternoon peak hour. In total, the public transit system in the Study Area has available capacity for approximately 21,061 additional riders during the morning peak hour and 18,665 additional riders during the afternoon peak hour. Ridership data information was not available for Foothill Transit, Torrance Transit, and Montebello Bus Lines services, so any additional capacity from those services could not be calculated into the above values but are expected to provide additional capacity. For conservative purposes, bus lines with stop locations located more than a short walking distance of 0.25 miles from the Project Site were not included.

Existing Bicycle System

Based on *2010 Bicycle Plan, A Component of the City of Los Angeles Transportation Element* (Los Angeles Department of City Planning, adopted March 1, 2011) (2010 Bicycle Plan), the existing bicycle system consists of a limited network of bicycle lanes (Class II) and bicycle routes (Class III). Class II bicycle lanes are a component of street design with dedicated striping, separating vehicular traffic from bicycle traffic. These facilities offer a safer environment for both cyclists and motorists. Class III bicycle routes and bicycle-friendly streets are those where motorists and cyclists share the roadway and there is no separated striping for bicycle travel. Bicycle routes and bicycle-friendly streets are preferably placed on collector and low volume arterial streets. Bicycle routes with shared lane markings, or “sharrows”, remind bicyclists to ride farther from parked cars to prevent collisions, increase awareness of motorists that bicycles may be in the travel lane, and show bicyclists the correct direction of travel.

The components of the 2010 Bicycle Plan have been incorporated into the bicycle network of the Mobility Plan. The Mobility Plan consists of a Low-Stress Bikeway System and a Bicycle Lane Network. The Low-Stress Bikeway System is comprised of the Bicycle Enhanced Network, the Neighborhood Enhanced Network, and Bike Paths. The Bicycle Enhanced Network includes protected bicycle lanes (Class IV), which provide bicycling infrastructure including cycle tracks, bicycle traffic signals, and demarcated areas to facilitate turns at intersections and along neighborhood streets. These Class IV networks typically provide mini-roundabouts, cross-street stop signs, crossing islands at major intersection crossings, improved street lighting, bicycle boxes, and bicycle-only left-turn pockets. Once implemented, these facilities would offer a safer environment for both cyclists and motorists. Currently, bicycle lanes are provided along the 2nd Street tunnel and sharrows are provided along 2nd Street east of Hill Street and Broadway south of 3rd Street within the Study Area.

Existing Pedestrian Facilities

The walkability of existing facilities is based on the availability of pedestrian routes necessary to accomplish daily tasks without the use of an automobile. These attributes are quantified by WalkScore.com and assigned a score out of 100 points. With the various commercial businesses, employment, entertainment, and cultural centers adjacent to residential neighborhoods, the walkability of the Study Area is approximately 98 points[1]. This compares to the overall walk score of 95 points for the Downtown community.

The sidewalks that serve as routes to the Project Site provide proper connectivity and adequate widths for a comfortable and safe pedestrian environment. The sidewalks provide connectivity to accessible crossings at intersections within the Study Area. The following signalized intersections provide pedestrian access in the vicinity of the Project Site (all intersections have marked pedestrian crossings on all approaches):

- Olive Street & 4th Street (Intersection #6)
- Hill Street & 4th Street (Intersection #7)

Signalized midblock crosswalks are also available along Olive Street and Hill Street. The signalized intersections and signalized midblock crosswalks provide pedestrian facilities for access to the Project Site, as well as pedestrian phasing, crosswalk striping, and Americans with Disabilities Act (ADA) curb ramps. Additional pedestrian facilities, not immediately adjacent to the Project Site, are located within the Study Area and are further detailed in Figures 4 and 5.

Vision Zero

As described in *Vision Zero: Eliminating Traffic Deaths in Los Angeles by 2025* (City of Los Angeles, August 2015), Vision Zero is a traffic safety policy that promotes strategies to eliminate transportation-related collisions that result in severe injury or death. Vision Zero has identified a High Injury Network, a network of streets included based on collision data from the last five years, where strategic investments would have the biggest impact in reducing death and severe injury. The Project Site is not located adjacent to any streets identified in the High Injury Network. However, within the Study Area, the following streets are identified in the High Injury Network (and depicted on Figure 5):

[1] Walk Score (www.walkscore.com) rates the Project Site with a score of 98 of 100 possible points (scores assessed on January 21, 2020 for 332 S. Olive Street). Walk Score calculates the walkability of specific addresses by taking into account the ease of living in the neighborhood with a reduced reliance on automobile travel.

- Broadway between 3rd Street and 5th Street
- 2nd Street east of Broadway
- 3rd Street east of Broadway
- 5th Street
- Spring Street

Existing Traffic Volumes

Intersection turning movement counts for typical weekday morning (7:00 AM to 10:00 AM) and afternoon (3:00 PM to 6:00 PM) peak periods were collected in November 2019 while schools were in session. The existing intersection peak hour traffic volumes are illustrated in Figure 7.

FUTURE CUMULATIVE TRANSPORTATION CONDITIONS

The forecast of Future without Project Conditions was prepared in accordance with procedures outlined in the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 and following). Specifically, two options are provided for developing the cumulative traffic volume forecast:

> "(A) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the [lead] agency, or
>
> "(B) A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such planning document shall be referenced and made available to the public at a location specified by the lead agency."

As described in detail below, this analysis includes increases to traffic from future projects (option "A" above, the "Related Projects") and from regional growth projections (option "B" above, or ambient growth). The ambient growth factor discussed below likely includes some traffic increases resulting from the Related Projects. Therefore, through some inherent double-counting of vehicles, the traffic analysis provides a highly conservative estimate of Future without Project traffic volumes.

The Future without Project traffic volumes, therefore, include ambient growth, which reflects increase in traffic due to regional growth and development outside the Study Area, as well as traffic generated by ongoing or entitled projects near or within the Study Area.

Ambient Traffic Growth

Traffic levels are expected to increase over time as a result of regional growth and development in and around the Study Area. Based on discussions with LADOT through the MOU process, a conservative ambient growth factor of 1% per year compounded annually was applied by inflating the existing traffic volumes to simulate Year 2028 traffic volumes. The total adjustment applied over the nine-year period was 9.37%. These growth factors account for increases in traffic due to potential projects not yet proposed and projects located outside the Study Area.

Related Projects

In accordance with the CEQA Guidelines requirements, this study also considered the effects of the Project in relation to other developments either proposed, approved, or under construction (collectively, the Related Projects). Including this analysis step, the potential impact of the Project is evaluated within the context of past, present, and probable future developments capable of producing cumulative impacts.

The list of Related Projects is based on information provided by LADCP and LADOT, as well as recent studies in the area. The Related Projects are detailed in Table 4 and shown in Figure 8. Though the buildout years of many of these Related Projects are uncertain and may be well beyond the buildout year of the Project, and notwithstanding that some may never be approved or developed, they were all considered as part of this transportation assessment and conservatively assumed to be completed by the Project buildout year of 2028. The traffic growth due to the development of Related Projects considered in this analysis is conservative and, by itself, substantially overestimates the actual traffic volume growth in the area that would likely occur prior to Project buildout years. With the addition of the 1% per year ambient growth factor previously discussed, the Future without Project cumulative condition is even more conservative.

Using these assumptions, the potential traffic impacts of the Project were evaluated. The development of estimated traffic volumes added to the study intersections as a result of Related Projects involves the use of a three-step process: trip generation, trip distribution, and trip assignment.

Trip Generation. Trip generation estimates for the Related Projects were provided by LADOT or were calculated using a combination of previous study findings and the trip generation rates contained in *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, 2017). The Related Projects trip generation estimates summarized in Table 4 are conservative in that they do not in every case account for either the trips generated by the existing uses to be removed or the likely use of other travel modes (e.g., transit, bus, bicycling, walking, carpool, etc.) Further, in many cases, they do not account for the internal capture trips within a multi-use development or for the interaction of trips between multiple Related Projects, in which one Related Project serves as the origin for a trip destined for another Related Project.

Trip Distribution. The geographic distribution of the traffic generated by the Related Projects is dependent on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the employees/residents and potential patrons of the proposed developments are drawn, and the location of these projects in relation to the surrounding street system. These factors are considered along with logical travel routes through the street system to develop a reasonable pattern of trip distribution.

Traffic Assignment. The trip generation estimates for the Related Projects were assigned to the local street system using the trip distribution pattern described above. Figure 9 shows the peak hour traffic volumes associated with these Related Projects at the study intersections.

Future without Project Traffic Volumes

The Related Projects volumes were then added to the existing traffic volumes after adjustment for ambient growth through the projected Project completion year of 2028. As discussed above, this is a conservative approach as many of the Related Projects may already be reflected in the ambient growth rate. These volumes represent the Future without Project Conditions (i.e., ambient traffic growth and Related Project traffic added to existing traffic volumes) for Year 2028 and are shown in Figure 10 for all study intersections.

Future Roadway Improvements

The analysis of Future Conditions accounted for roadway improvements that were funded and expected to be implemented prior to the buildout of the proposed Project. Any roadway improvement that would result in changes to the physical configuration at the study intersections would be incorporated into the analysis. Other proposed roadways improvement projects that are not funded and traffic/trip reduction strategies such as Transportation Demand Management (TDM) programs for individual buildings and developments were omitted from the Future Conditions analyses. The following projects were evaluated for their potential effects on the future roadway configurations.

Metro Regional Connector. The Metro Regional Connector project is a 1.9-mile underground light rail system that will extend from the Metro Gold Line Little Tokyo/Arts District Station to the 7th Street/Metro Center Station, allowing passengers to make direct transfers between the A (formerly known as Blue), E (formerly known as Expo), B, and D Lines. The Metro Regional Connector will improve access to both local and regional destinations by providing continuous service between these lines and providing connectors to other rail lines via the 7th Street/Metro Center Station. Three new transit stations will be developed with the operation of the Metro Regional Connector, including one to be located at the Grand Avenue Arts/Bunker Hill Station on 2nd Place and Hope Street. Based on recent information provided on the Metro website[2], the Metro Regional Connector is anticipated to be completed and in operation by 2022. The Metro Regional Connector will be underground and will not affect the at-grade street configurations of the corridors in the Study Area. No changes to the street network were made based on this project.

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[2] Construction updates for the Metro Regional Connector based on information provided at www.metro.net (accessed on January 22, 2020).

Los Angeles Streetcar. The Los Angeles Streetcar project will revive the historic streetcar service that once spanned 600 miles of the City in the early 20th Century. The proposed four-mile route of the Los Angeles Streetcar project will closely follow the alignments that originally ran through downtown. The Los Angeles Streetcar will enhance mobility and transit circulation and support the growth and revitalization of downtown. The Los Angeles Streetcar is anticipated to begin operation in 2021. However, the design of the Los Angeles Streetcar has not been finalized, remains speculative and was not included in the future year analyses.

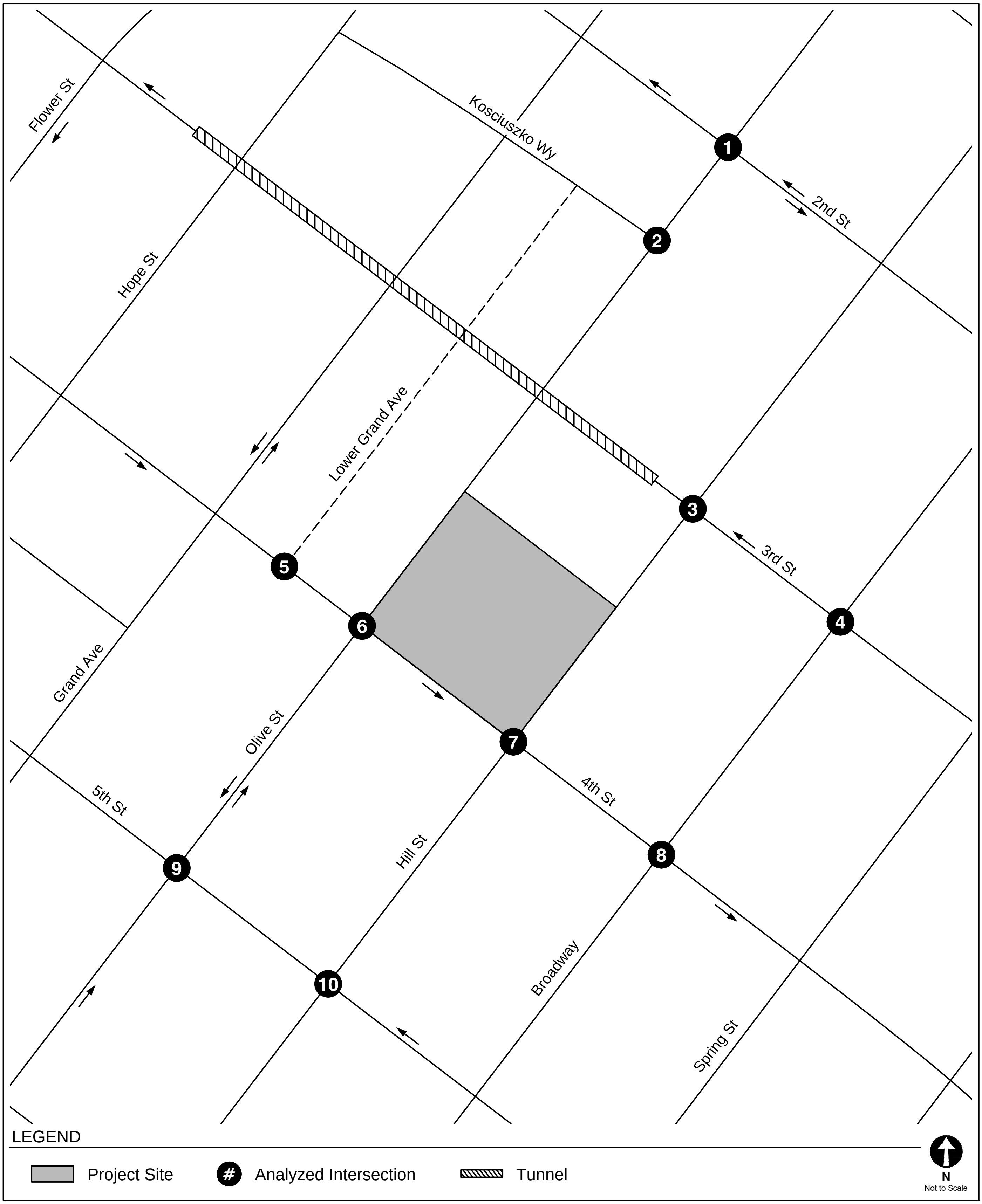
Mobility Plan. In the Mobility Plan, the City identifies key corridors as components of various "mobility-enhanced networks." Each network is intended to focus on improving a particular aspect of urban mobility, including transit, neighborhood connectivity, bicycles, pedestrians, and vehicles. The specific improvements that may be implemented in those networks have not yet been identified, and there is no schedule for implementation; therefore, no changes to vehicular lane configurations were made as a result of the Mobility Plan. However, the following mobility-enhanced networks included corridors within or near the Study Area and depicted on Figure 11:

- Transit Enhanced Network (TEN): The TEN aims to improve existing and future bus services through reliable and frequent transit service in order to increase transit ridership, reduce single-occupancy vehicle trips, and integrate transit infrastructure investments within the surrounding street system. The TEN has designated Broadway and 5th Street within the Study Area as part of the network.

- Neighborhood Enhanced Network (NEN): The NEN reflects the synthesis of the bicycle and pedestrian networks and serves as a system of local streets that are slow moving and safe enough to connect neighborhoods through active transportation. The NEN has designated Hill Street south of 4th Street within the Study Area as part of the network.

- Bicycle Enhanced Network (BEN): The BEN includes the Bicycle Path Network and the Bicycle Network. No streets within the Study Area are designated as part of the Bicycle Path Network. Hill Street south of 4th Street and 2nd Street within the Study Area are designed as part of the Bicycle Network.

- Pedestrian Enhanced District (PED): The Mobility Plan aims to promote walking to reduce the reliance on automobile travel by providing more attractive and pedestrian-friendly sidewalks, as well as adding pedestrian signalizations, street trees, and pedestrian-oriented design features. The PED has designated all streets within the Study Area as Pedestrian Segments, where pedestrian improvements could be prioritized to provide better connectivity to and from major destinations within communities.

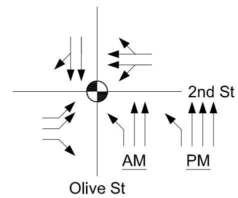
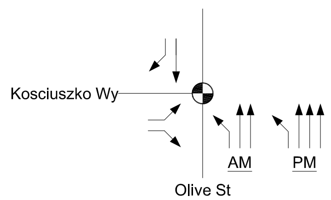
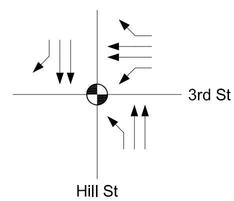
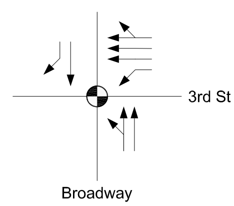
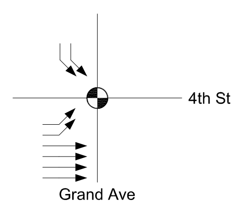
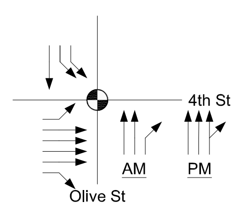


STUDY AREA & ANALYZED INTERSECTIONS

FIGURE 2B

LEGEND

Signalized Intersection

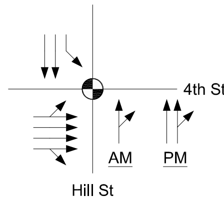
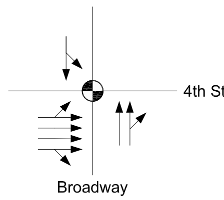
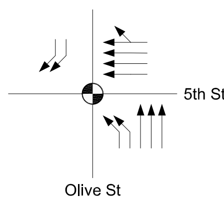
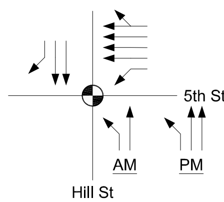
	EXISTING CONDITIONS (YEAR 2019)	FUTURE CONDITIONS (YEAR 2028)
1. Olive Street & 2nd Street		Same as Existing Conditions
2. Olive Street & Kosciuszko Way		Same as Existing Conditions
3. Hill Street & 3rd Street		Same as Existing Conditions
4. Broadway & 3rd Street		Same as Existing Conditions
5. Lower Grand Avenue & 4th Street		Same as Existing Conditions
6. Olive Street & 4th Street		Same as Existing Conditions

INTERSECTION LANE CONFIGURATIONS

FIGURE 3

LEGEND

Signalized Intersection

	EXISTING CONDITIONS (YEAR 2019)	FUTURE CONDITIONS (YEAR 2028)
7. Hill Street & 4th Street		Same as Existing Conditions
8. Broadway & 4th Street		Same as Existing Conditions
9. Olive Street & 5th Street		Same as Existing Conditions
10. Hill Street & 5th Street		Same as Existing Conditions

INTERSECTION LANE CONFIGURATIONS

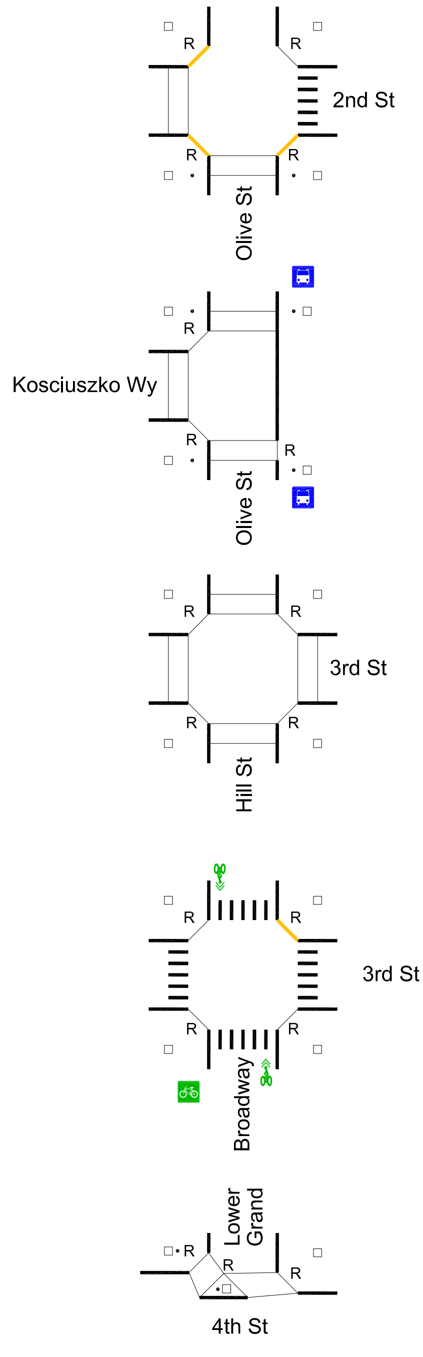
FIGURE 3(CONT.)

LEGEND

- Continental Crosswalk
- R Ramp
- Tactile Curb
- Ped Signal
- Ped Call Button
- Metro Rail Station
- Bus Stop
- Bikeshare
- Bike Sharrow

N
Not to Scale

1. Olive Street & 2nd Street
2. Olive Street & Kosciuszko Way
3. Hill Street & 3rd Street
4. Broadway & 3rd Street
5. Lower Grand Avenue & 4th Street



EXISTING INTERSECTION MOBILITY FACILITIES

FIGURE 4

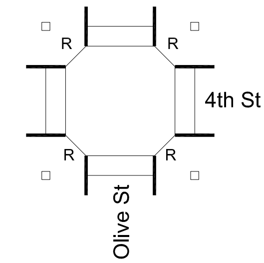
Gibson transportation consulting, inc.

LEGEND

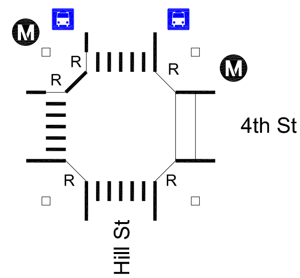
- Continental Crosswalk
- R Ramp
- Tactile Curb
- Ped Signal
- Ped Call Button
- Metro Rail Station
- Bus Stop
- Bikeshare
- Bike Sharrow

N
Not to Scale

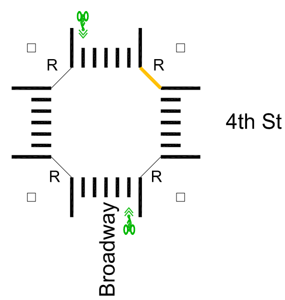
6. Olive Street &
4th Street



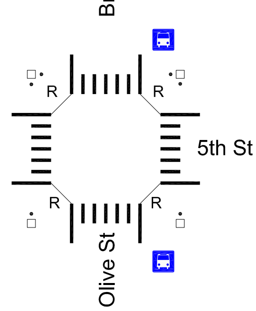
7. Hill Street &
4th Street



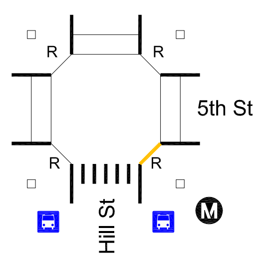
8. Broadway &
4th Street



9. Olive Street &
5th Street

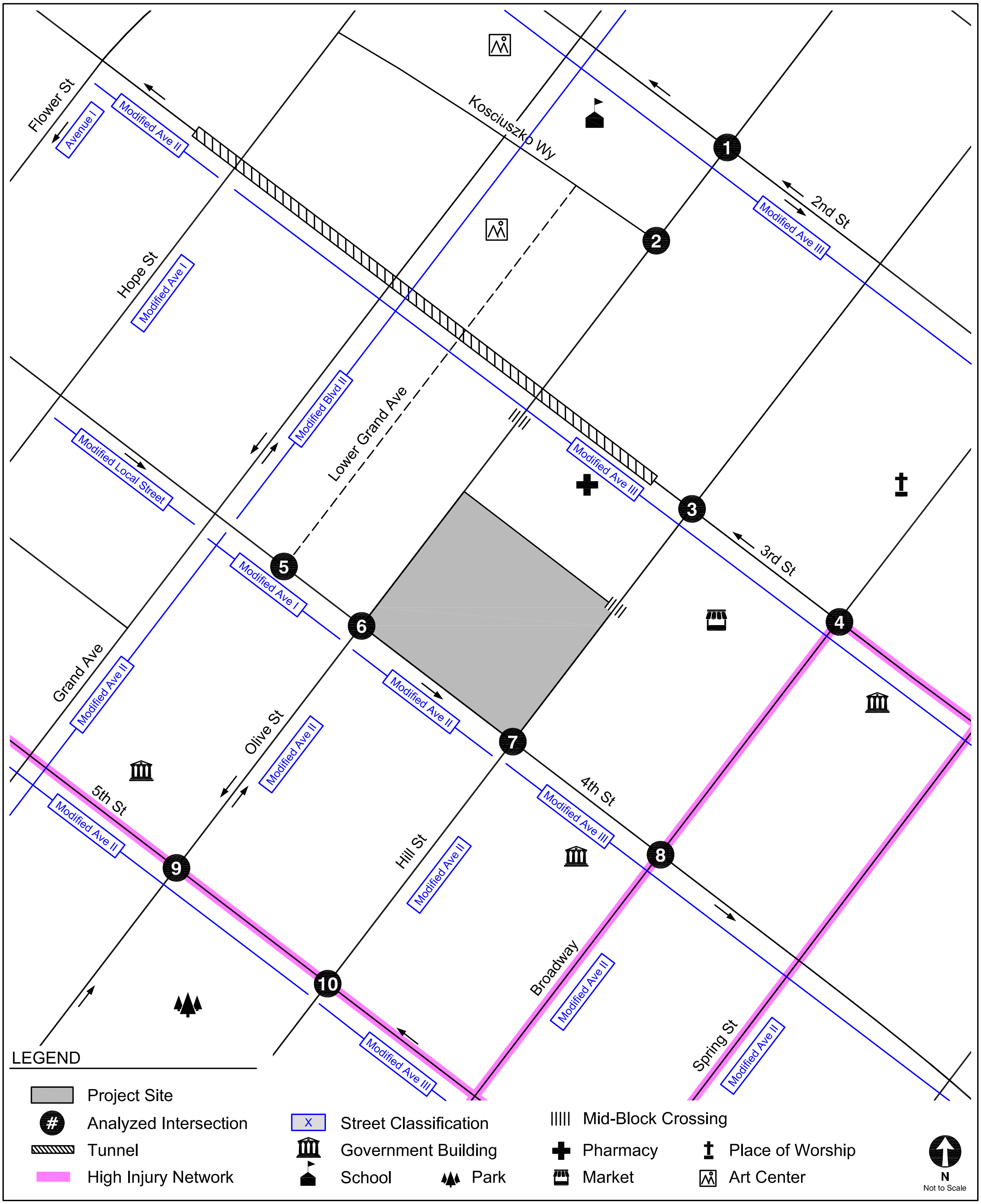


10. Hill Street &
5th Street



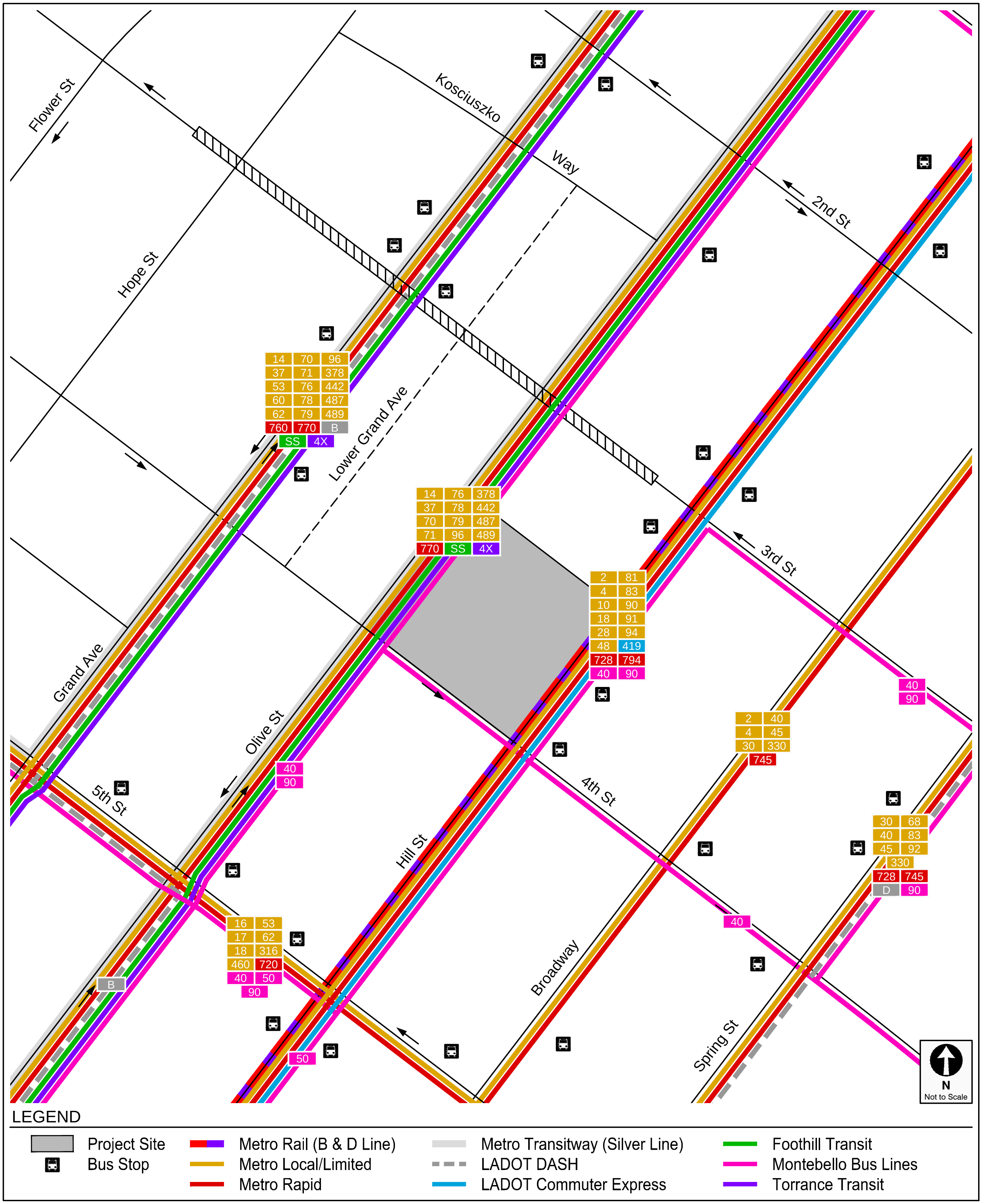
EXISTING INTERSECTION MOBILITY FACILITIES

FIGURE 4(CONT.)



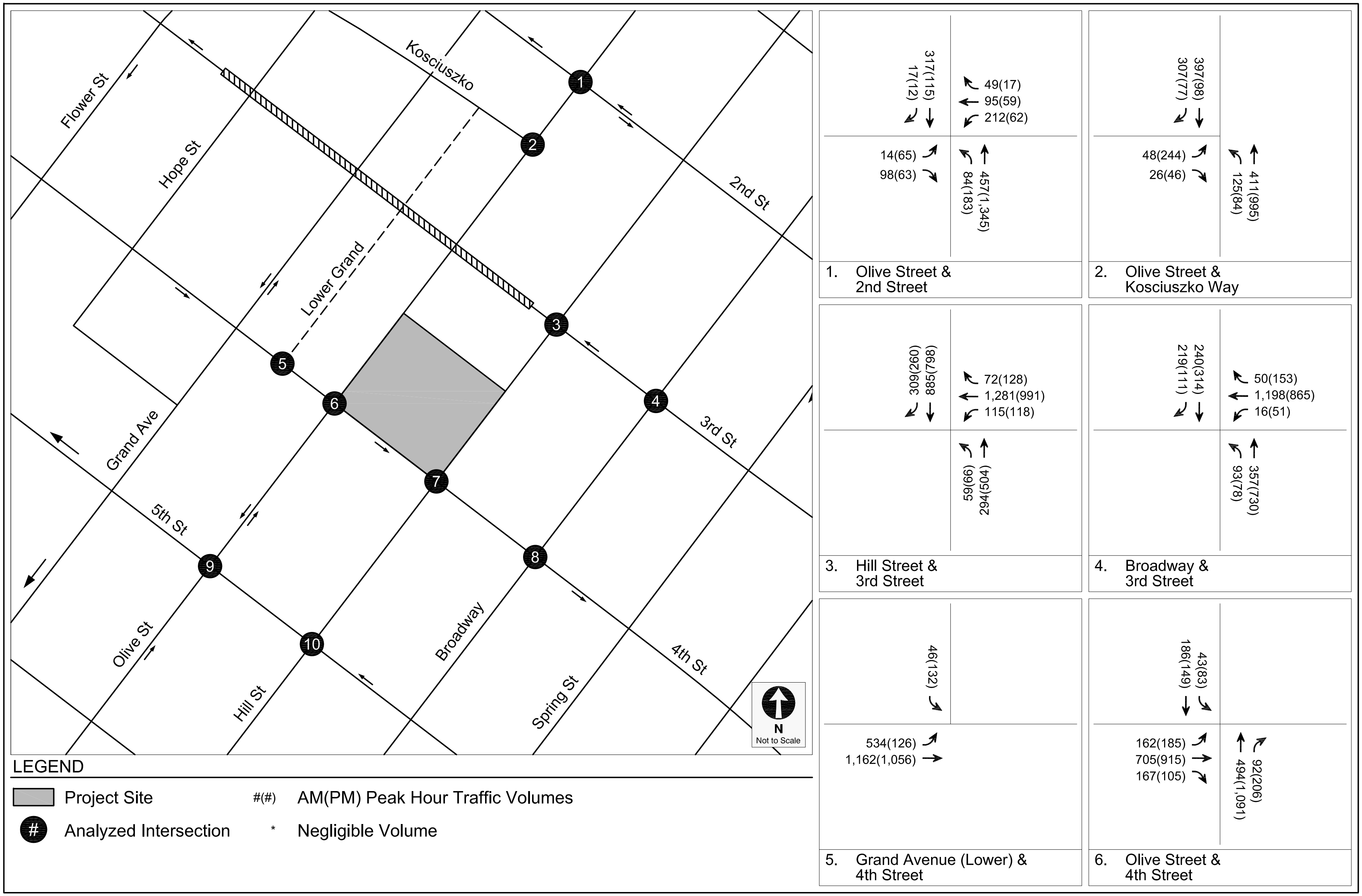
EXISTING TRANSPORTATION FACILITIES

FIGURE 5



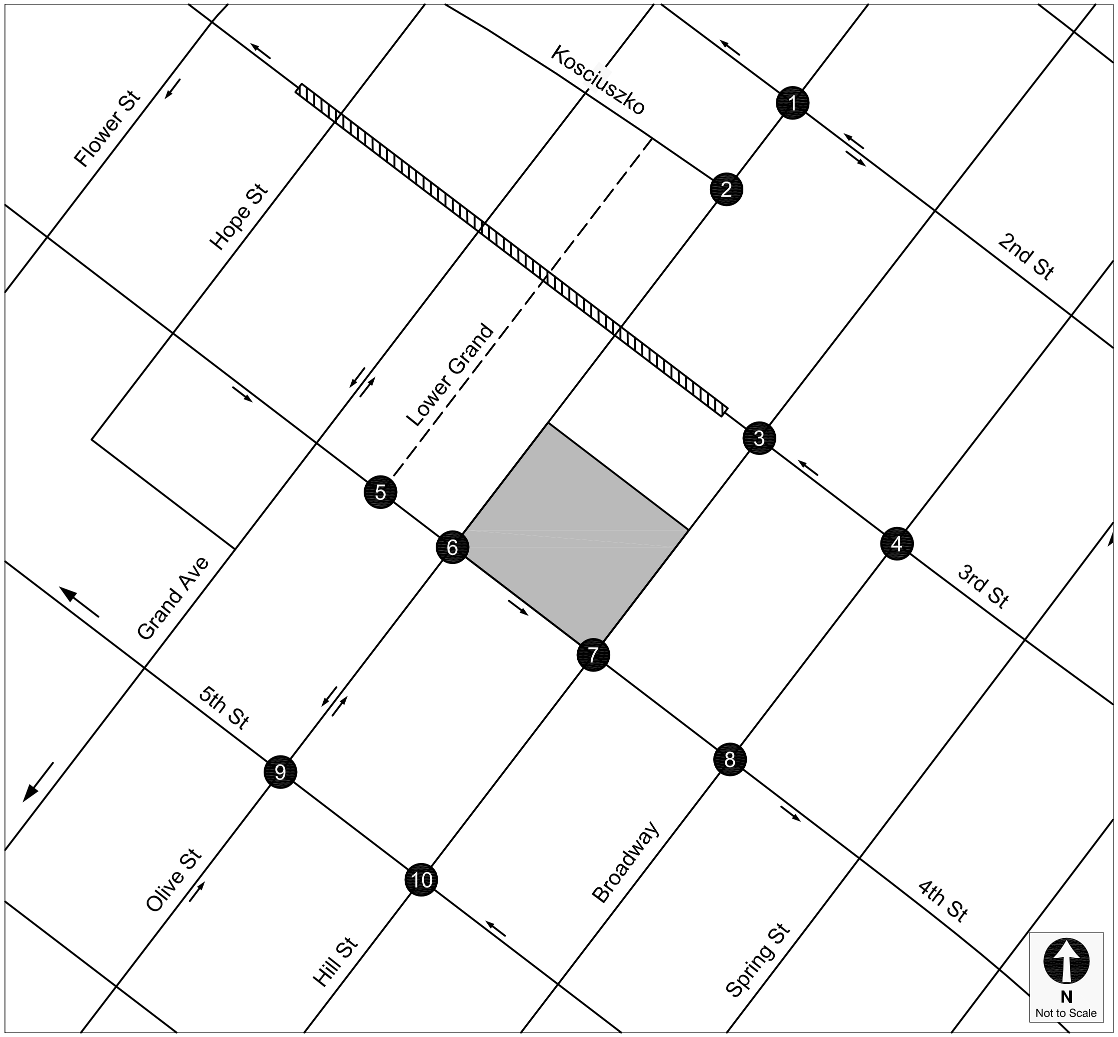
EXISTING TRANSIT SERVICE

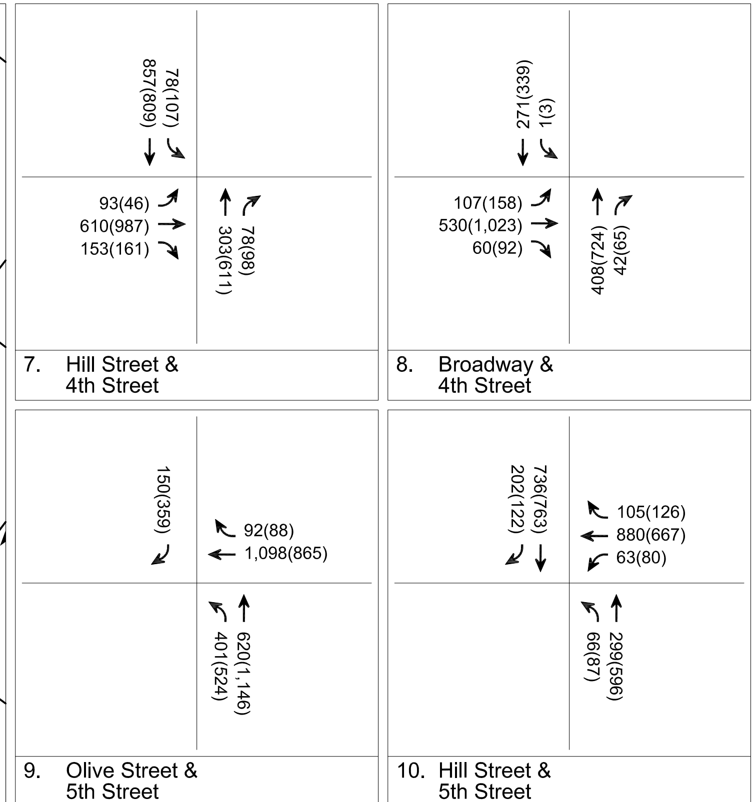
FIGURE 6



EXISTING CONDITIONS (YEAR 2019)
PEAK HOUR TRAFFIC VOLUMES

FIGURE 7





LEGEND

Project Site

#(#) AM(PM) Peak Hour Traffic Volumes

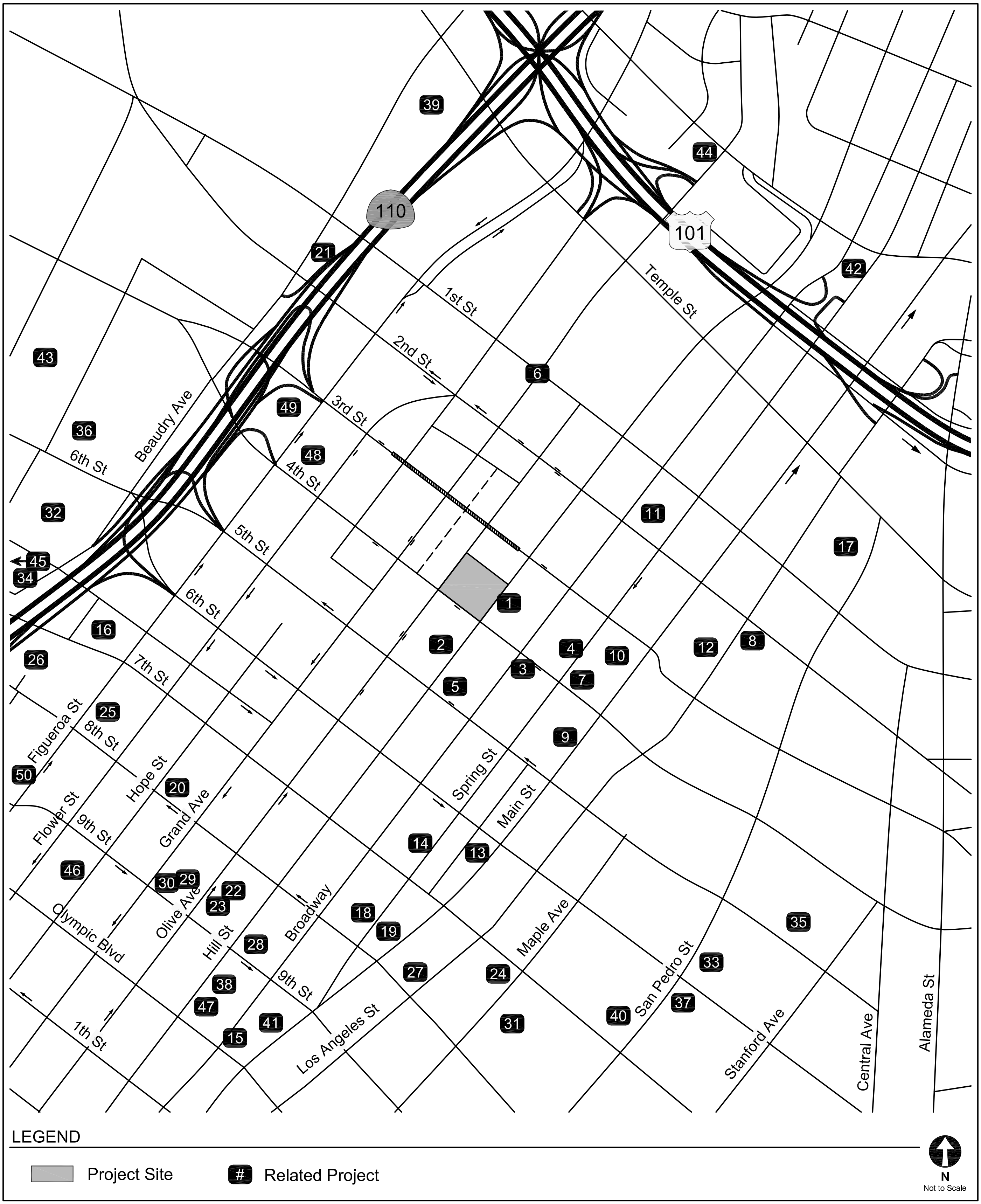
Analyzed Intersection

* Negligible Volume

EXISTING CONDITIONS (YEAR 2019)
PEAK HOUR TRAFFIC VOLUMES

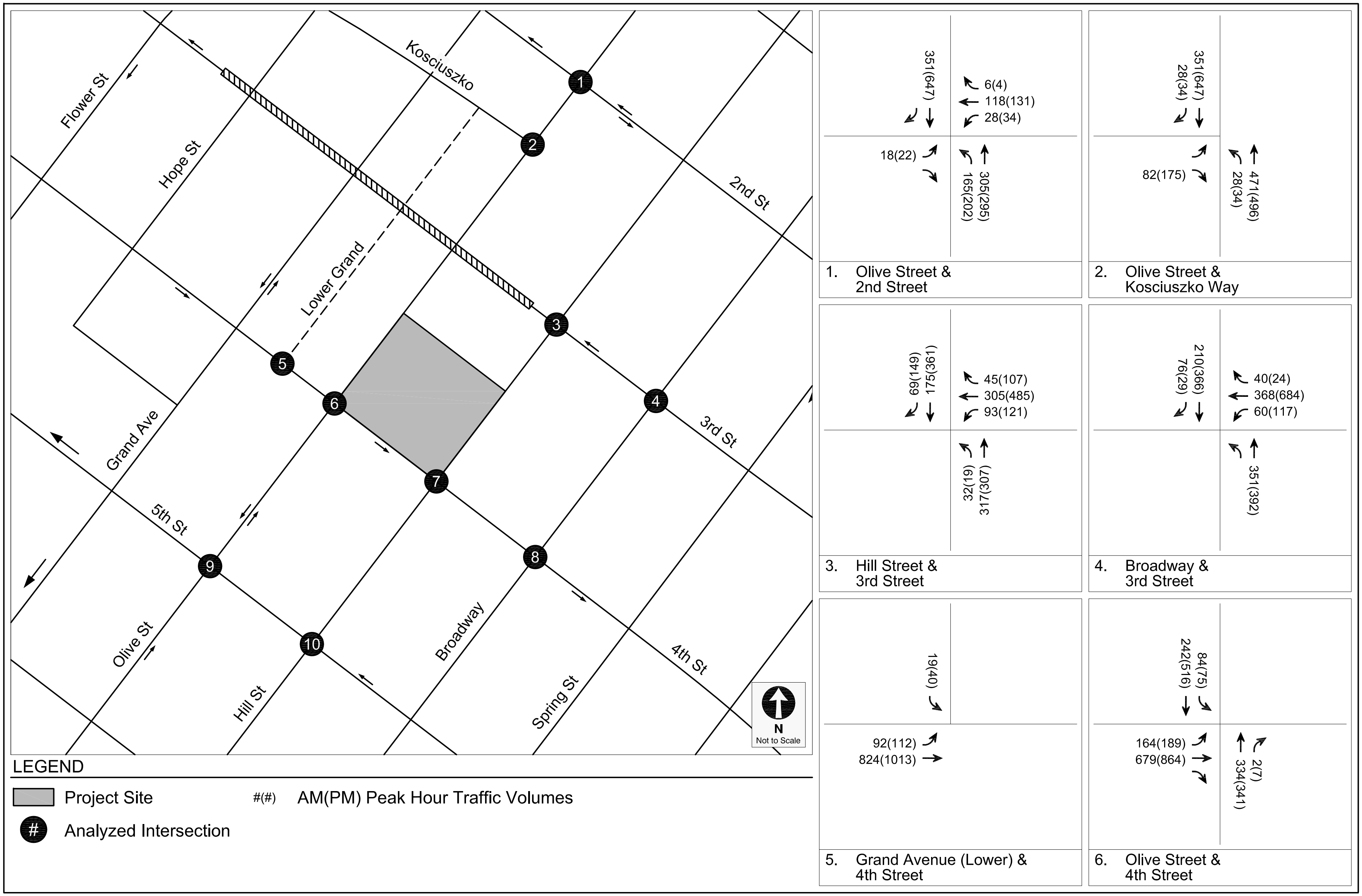
FIGURE 7(CONT.)

Gibson
transportation consulting, inc.



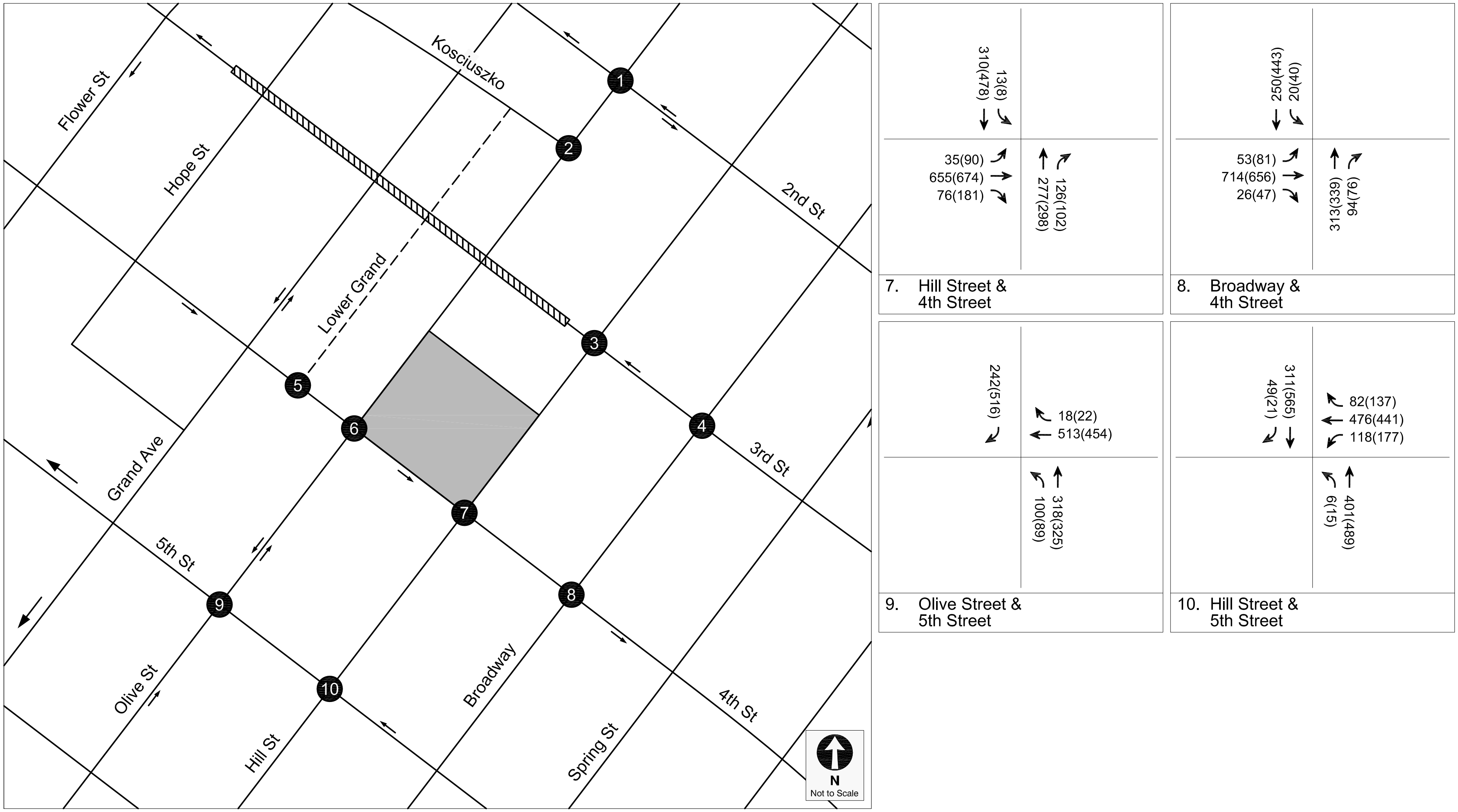
LOCATIONS OF RELATED PROJECTS

FIGURE 8



RELATED PROJECT ONLY
PEAK HOUR TRAFFIC VOLUMES

FIGURE 9



LEGEND

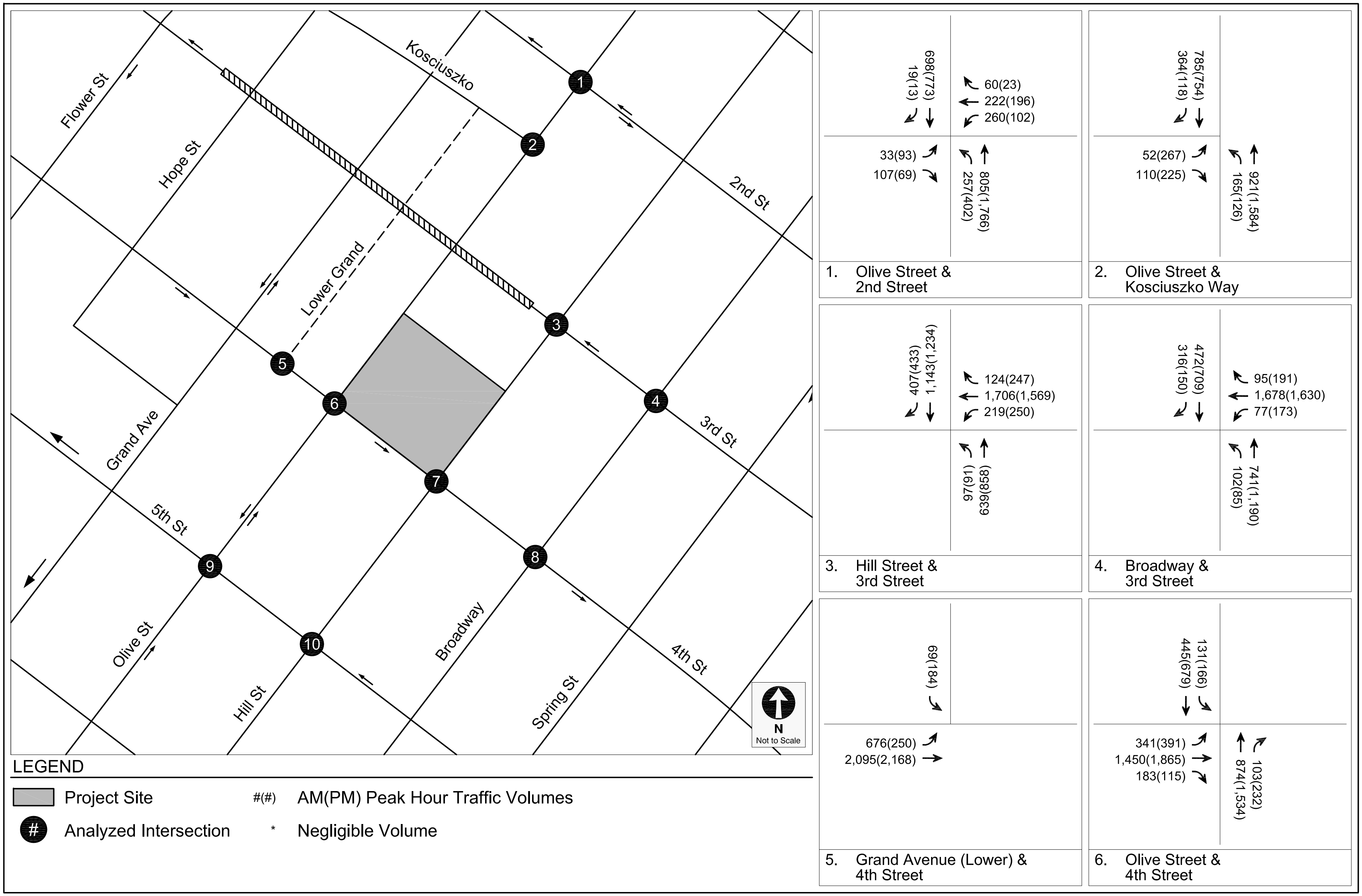
Project Site

\#(#) AM(PM) Peak Hour Traffic Volumes

\# Analyzed Intersection

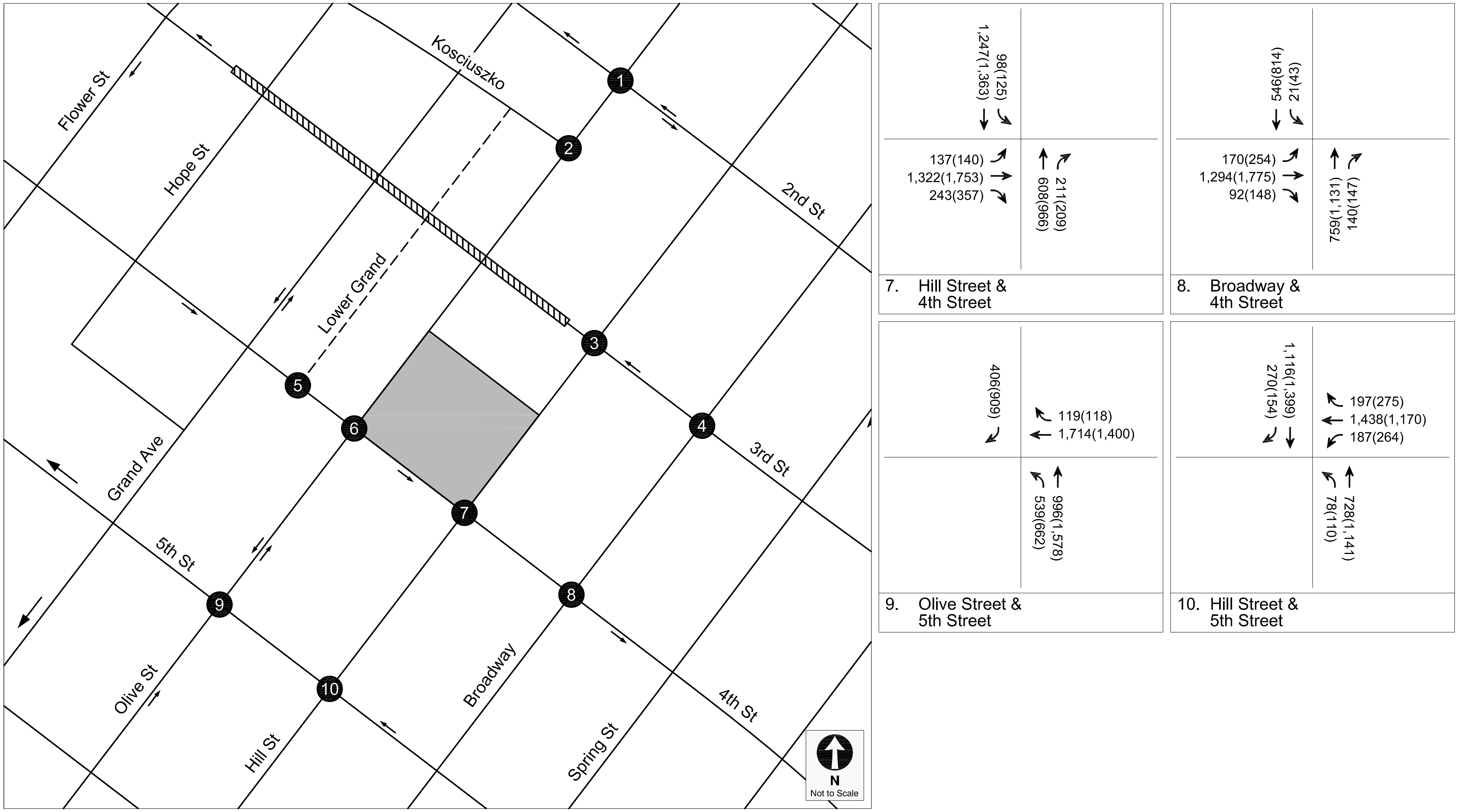
RELATED PROJECT ONLY
PEAK HOUR TRAFFIC VOLUMES

FIGURE
9(CONT.)



FUTURE WITHOUT PROJECT CONDITIONS (YEAR 2028)
PEAK HOUR TRAFFIC VOLUMES

FIGURE 10

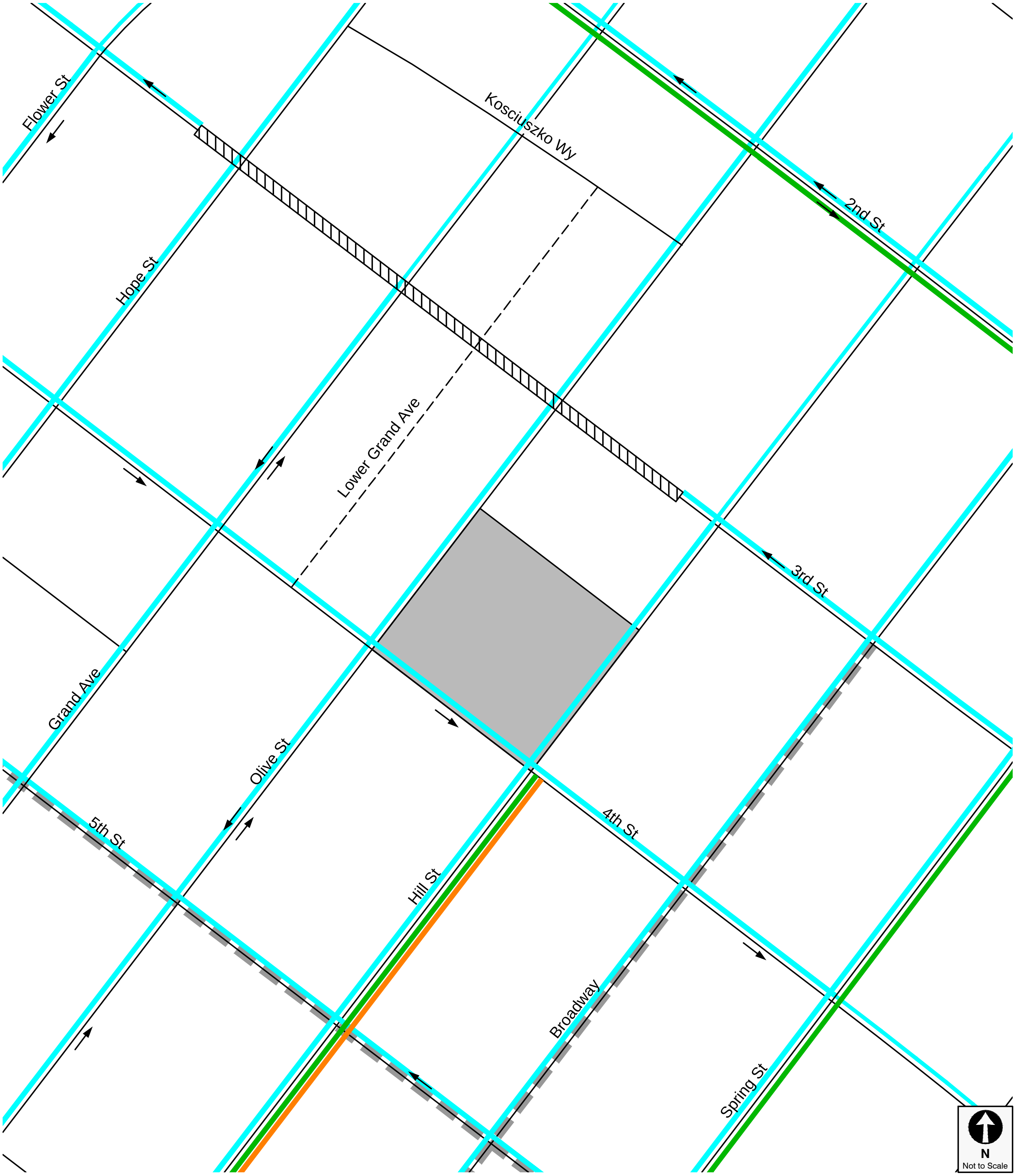


LEGEND

Project Site		#(#)	AM(PM) Peak Hour Traffic Volumes
#	Analyzed Intersection	*	Negligible Volume

FUTURE WITHOUT PROJECT CONDITIONS (YEAR 2028)
PEAK HOUR TRAFFIC VOLUMES

FIGURE 10(CONT.)



LEGEND

Project Site

Transit Enhanced Network

Pedestrian Enhanced Network

Bicycle Network

Neighborhood Enhanced Network

FUTURE TRANSPORTATION FACILITIES

FIGURE 11

TABLE 1
STUDY INTERSECTIONS

No.	North / South Street	East / West Street
1.	Olive Street	2nd Street
2.	Olive Street	Kosciuszko Way
3.	Hill Street	3rd Street
4.	Broadway	3rd Street
5.	Grand Avenue (Lower)	4th Street
6.	Olive Street	4th Street
7.	Hill Street	4th Street
8.	Broadway	4th Street
9.	Olive Street	5th Street
10.	Hill Street	5th Street

TABLE 2
EXISTING TRANSIT SERVICE

Provider, Route, and Service Area		Service Type	Hours of Operation	Average Headway (minutes)			
				AM Peak Period		PM Peak Period	
Metro				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
2	Downtown Los Angeles - Pacific Palisades via Sunset Blvd	Local	4:00 AM - 3:00 AM	30	14	15	24
4	Downtown Los Angeles - West Los Angeles - Santa Monica via Santa Monica Blvd	Local	24-Hour	14	11	10	14
10	Downtown Los Angeles - West Hollywood via Temple St & Melrose Ave	Local	4:30 AM - 1:00 AM	12	10	11	13
14	Downtown Los Angeles - Beverly Hills via Beverly Blvd	Local	24-Hour	8	8	8	8
16	Downtown Los Angeles - Century City via 3rd St	Local	4:00 AM - 1:30 AM	5	5	5	5
18	Downtown Los Angeles/Montebello - Downtown Los Angeles/Wilshire/Western Station via 6th St & Whittier Blvd	Local	4:00 AM - 3:00 AM	7	11	10	7
28	Downtown Los Angeles - Century City via W Olympic Blvd	Local	4:30 AM - 1:30 AM	17	15	16	17
30	Downtown Los Angeles - Indiana Station via San Vicente Blvd, Pico Blvd & E 1st St	Local	24-Hour	7	9	8	6
37	Downtown Los Angeles - Washington/Fairfax Transit Hub via Adams Blvd	Local	4:30 AM - 1:15 AM	7	9	9	7
40	Downtown Los Angeles - South Bay Galleria via King-Hawthorne	Local	4:30 AM - 1:00 AM	13	15	15	14
45	Lincoln Heights - Downtown Los Angeles - Rosewood via Broadway	Local	24 - Hour	8	13	10	9
48	Downtown Los Angeles - Avalon Station via Main St & San Pedro St	Local	4:30 AM - 11:00 PM	10	15	12	12
53	Downtown Los Angeles - CSU Dominguez Hills via Central Ave	Local	5:00 AM - 12:00 AM	9	15	14	10
60	Downtown Los Angeles - Artesia Station via Long Beach Blvd, Owl Service to Downtown Long Beach	Local	24-Hour	9	10	8	8
62	Downtown Los Angeles - Hawaiian Gardens via Telegraph Rd	Local	5:00 AM - 12:00 AM	24	24	20	30
68	Downtown Los Angeles - Montebello via Cesar E Chavez Ave	Local	4:00 AM - 1:00 AM	16	16	17	17
70	Downtown Los Angeles - El Monte via Garvey Ave	Local	24-Hour	13	13	15	13
71	Downtown Los Angeles - Cal State LA via Wabash Ave & City Terrace Dr	Local	5:30 AM - 8:30 PM	18	20	34	34
76	Downtown Los Angeles - El Monte via Valley Blvd	Local	24-Hour	15	15	15	14
78	Downtown Los Angeles - Arcadia via Las Tunas Drive/Huntington Dr	Local	4:00 AM - 2:00 AM	12	8	8	11
79	Downtown Los Angeles - Arcadia via Las Tunas Drive/Huntington Dr	Local	4:00 AM - 2:00 AM	27	9	27	11
81	Eagle Rock - Downtown Los Angeles - Harbor Freeway Station via Figueroa St	Local	4:30 AM - 2:00 AM	9	11	13	11
83	Downtown Los Angeles - Eagle Rock via York Blvd & Pasadena Ave	Local	24-Hour	34	24	27	34
90	Downtown Los Angeles - Sunland - Olive View Medical Center via Glendale Ave & Foothill Blvd	Local	5:00 AM - 9:30 PM	16	18	16	16

TABLE 2 (CONTINUED)
EXISTING TRANSIT SERVICE

Provider, Route, and Service Area		Service Type	Hours of Operation	Average Headway (minutes)			
				AM Peak Period		PM Peak Period	
Metro				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
91	Downtown Los Angeles - Sunland - Olive View Medical Center via Glendale Ave & Foothill Blvd	Local	5:00 AM - 9:30 PM	16	18	16	16
92	Burbank - Downtown Los Angeles via Glendale Blvd & Brand Blvd	Local	5:00 AM - 10:00 PM	27	24	27	27
94	Downtown Los Angeles - Sun Valley via San Fernando Rd	Local	4:30 AM - 2:00 AM	22	18	27	24
96	Downtown Los Angeles - Burbank Station via Riverside Dr & LA Zoo	Local	4:30 AM - 9:15 PM	34	30	30	34
316	Downtown Los Angeles - Century City via 3rd St	Limited	6:30 AM - 6:30 PM	8	8	9	10
378	Downtown Los Angeles - Arcadia via Las Tunas Dr/Huntington Dr	Limited	5:30 AM - 7:00 PM	N/A	30	30	N/A
442	Downtown Los Angeles - Hawthorne/Lennox Station via Manchester Blvd	Express	5:45 AM - 7:15 PM	45	N/A	N/A	45
460	Downtown Los Angeles - Disneyland via Harbor Transitway & I-105 Freeway	Express	4:00 AM - 2:00 AM	24	24	30	22
487 - 489	Downtown Los Angeles - Sierra Madre Villa Station - El Monte Station	Express	5:30 AM - 9:30 PM	40	13	14	40
720	LA/Commerce - Santa Monica via Wilshire Bl & Whittier Blvd	Rapid	6:00 A.M - 2:30 AM	11	4	4	10
728	Downtown Los Angeles - Century City via West Olympic Blvd	Rapid	5:00 AM - 9:00 PM	14	13	14	15
745	Downtown Los Angeles - Harbor Freeway Station via Broadway	Rapid	5:00 AM - 9:00 PM	10	11	11	10
760	Downtown Los Angeles - Long Beach via Pacific Blvd	Rapid	5:00 AM - 8:00 PM	14	15	15	16
770	Downtown Los Angeles - El Monte Station via Garvey Blvd & Caesar E Chavez Ave	Rapid	5:00 AM - 9:00 PM	15	13	15	15
794	Downtown Los Angeles - Sylmar Station via San Fernando Rd	Rapid	4:30 AM - 9:30 PM	24	15	27	24
Metro Rail				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
B	Downtown Los Angeles - North Hollywood	Rail	4:30 A.M. - 2:00 A.M.	10	10	10	10
D	Downtown Los Angeles - Koreatown	Rail	4:30 A.M. - 2:00 A.M.	10	10	10	10
Metro Transitway				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
Silver	Harbor Gateway Transit Center - El Monte	BRT	4:00 AM - 1:30 AM	5	6	5	5
LADOT DASH				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
B	Chinatown - Financial District	Local	6:00 AM - 6:30 PM	8	8	8	8
D	Union Station - South Park	Local	6:00 AM - 6:30 PM	6	6	6	6

TABLE 2 (CONTINUED)
EXISTING TRANSIT SERVICE

Provider, Route, and Service Area		Service Type	Hours of Operation	Average Headway (minutes)			
				AM Peak Period		PM Peak Period	
LADOT Commuter Express				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
419	Chatsworth - Northridge - Granada Hills - Mission Hills - Downtown Los Angeles	Express	5:30 AM - 8:30 PM	N/A	19	23	N/A
Foothill Transit				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
SS	Silver Streak - Montclair - Downtown Los Angeles	Express	24-Hour	20	9	9	20
Torrance Transit				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
4X	Torrance - Downtown Los Angeles	Express	5:00 AM - 8:00 PM	30	N/A	N/A	30
Montebello Bus Lines				**NB/EB**	**SB/WB**	**NB/EB**	**SB/WB**
M40	Montebello - Whittier - Downtown Los Angeles	Express	4:45 AM - 11:00 PM	9	N/A	N/A	9
M50	La Mirada - Downtown Los Angeles	Express	4:30 AM - 11:15 PM	30	N/A	N/A	26
M90	Montebello - Whittier - Downtown Los Angeles	Express	8:00 AM - 5:00 PM	45	N/A	N/A	30

Notes:
Metro: Los Angeles County Metropolitan Transportation Authority
LADOT Downtown Area Shuttle (DASH) & Commuter Express: Los Angeles Department of Transportation
AM Peak from 6-10 AM
PM Peak from 3-7 PM

TABLE 3A
TRANSIT SYSTEM CAPACITY IN STUDY AREA - MORNING PEAK HOUR

Provider, Route, and Service Area		Stop Location	Capacity per Trip [a]	Peak Hour Ridership [b]				Average Remaining Capacity per Trip		Remaining Peak Hour Capacity	
				Peak Load		Average Load					
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Metro Bus Service											
2	Downtown Los Angeles - Pacific Palisades via Sunset Bl	NB: Hill St at 4th St SB: Broadway at 3rd St	50	15	14	15	11	35	39	70	166
4	Downtown Los Angeles - West Los Angeles - Santa Monica via Santa Monica Bl	NB: Hill St at 4th St SB: Broadway at 3rd St	50	19	14	16	10	34	40	145	210
10	Downtown Los Angeles - West Hollywood via Temple St & Melrose Ave	Hill St at 4th St	50	23	12	6	3	44	47	220	270
14-37	Downtown Los Angeles - Beverly Hills via Beverly Boulevard	NB: Olive St at 5th St SB: Grand Ave at 3rd St	50	16	21	11	15	39	35	312	254
16-316	Downtown Los Angeles - Century City via 3rd Street	NB: Hill St at 6th St SB: Grand Ave at 5th St	50	16	15	11	10	39	40	488	440
18	Downtown Los Angeles/Montebello - Downtown Los Angeles/Wilshire/Western Station via 6th Street & Whittier Boulevard	NB: Hill St at 6th St SB: Grand Ave at 5th St	50	30	20	20	18	30	32	248	168
28	Downtown Los Angeles - Century City via W Olympic Boulevard	NB: Hill St at 3rd St SB: Spring St at 4th St	50	16	16	13	13	37	37	130	148
30	Downtown Los Angeles - Indiana Station via San Vicente Boulevard, Pico Boulevard & E 1st Street	NB: Broadway at 4th St SB: Spring St at 3rd St	50	10	17	7	8	43	42	366	294
40	Downtown Los Angeles - South Bay Galleria via King-Hawthorne	NB: Broadway at 4th St SB: Spring St at 4th St	50	13	14	11	12	39	38	176	152
45	Lincoln Heights - Downtown Los Angeles - Rosewood via Broadway	NB: Broadway at 3rd St SB: Spring St at 4th St	50	20	17	12	12	38	38	304	181
48	Downtown Los Angeles - Avalon Station via Main St & San Pedro St	Hill St at 4th St	50	*Ridership Data Information not Currently Available*							
53	Downtown Los Angeles - CSU Dominguez Hills via Central Avenue	EB: Grand Ave at 5th St WB: Grand Ave at 3rd St	50	4	3	3	1	47	49	329	196
60	Downtown Los Angeles - Artesia Station via Long Beach Boulevard, Owl Service to Downtown Long Beach	NB: Olive St at 7th St SB: Grand Ave at 3rd St	50	12	7	9	4	41	46	277	276
62	Downtown Los Angeles - Hawaiian Gardens via Telegraph Road	NB: Grand Ave at 5th St SB: Hill St at 6th St	50	5	17	4	15	46	35	115	88
68	Downtown Los Angeles - Montebello via Cesar E Chavez Ave	NB: Main St at 5th St SB: Spring St at 4th St	50	7	9	6	8	44	42	165	158
70	Downtown Los Angeles - El Monte via Garvey Avenue	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	18	12	13	10	37	40	167	180
71	Downtown Los Angeles - Cal State LA via Wabash Avenue & City Terrace Drive	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	12	10	10	8	40	42	130	126
76	Downtown Los Angeles - El Monte via Valley Boulevard	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	19	10	13	9	37	41	148	164
78-79-378	Downtown Los Angeles - Arcadia via Las Tunas Drive/Huntington Drive	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	15	13	11	9	39	41	195	318
81	Eagle Rock - Downtown Los Angeles - Harbor Freeway Station via Figueroa Street	Hill St at 4th St	50	21	23	16	21	34	29	221	160
83	Downntown Los Angeles - Eagle Rock via York Bl & Pasadena Ave	NB: Hill St at 3rd St SB: Spring St at 4th St	50	7	13	7	10	43	40	75	100
90-91	Downtown Los Angeles - Sunland - Olive View Medical Center via Glendale Ave & Foothill Bl	NB: Hill St at 3rd St SB: Hill St at 4th St	50	20	27	16	20	34	30	128	98

TABLE 3A (CONTINUED)
TRANSIT SYSTEM CAPACITY IN STUDY AREA - MORNING PEAK HOUR

Provider, Route, and Service Area		Stop Location	Capacity per Trip [a]	Peak Hour Ridership [b]				Average Remaining Capacity per Trip		Remaining Peak Hour Capacity	
				Peak Load		Average Load					
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Metro Bus Service											
92	Burbank - Downtown Los Angeles via Glendale Bl & Brand Bl	NB: Main St at 3rd St SB: Spring St at 4th St	50	11	10	10	8	40	42	90	105
94	Downtown Los Angeles - Sun Valley via San Fernando Rd	NB: Hill St at 4th St SB: Hill St at 3rd St	50	18	17	15	14	35	36	96	117
96	Downtown Los Angeles - Burbank Station via Riverside Drive & LA Zoo	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	7	7	6	7	44	43	77	86
442	Downtown Los Angeles - Hawthorne/Lennox Station via Manchester Boulevard	NB: Olive St at 5th St SB: Grand Ave at 3rd St	50	8	N/A	6	N/A	44	N/A	44	N/A
460	Downtown Los Angeles - Disneyland via Harbor Transitway & I-105 Freeway	NB: Grand Ave at 5th St SB: Hill St at 6th St	50	11	5	8	5	42	45	105	113
487-489	Downtown Los Angeles - Sierra Madre Villa Station - El Monte Station	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	11	19	10	13	40	37	60	167
720	LA/Commerce - Santa Monica via Wilshire Bl & Whittier Bl	EB: Broadway at 6th St WB: Broadway at 5th St	75	30	26	23	16	52	59	286	797
728	Downtown Los Angeles - Century City via West Olympic Bl	EB: Hill St at 3rd St WB: Spring St at 3rd St	75	5	7	4	5	71	70	302	315
745	Downtown Los Angeles - Harbor Freeway Station via Broadway	EB: Broadway at 3rd St WB: Spring St at 4th St	75	11	11	6	9	69	66	431	363
760	Downtown Los Angeles - Long Beach via Pacific Bl	NB: Olive St at 7th St SB: Grand Ave at 5th St	75	13	4	10	3	65	72	276	288
770	Downtown Los Angeles - El Monte Station via Garvey Boulevard & Caesar E Chavez Avenue	NB: Olive St at 5th St SB: Grand Ave at 5th St	75	12	12	10	11	65	64	260	288
794	Downtown Los Angeles - Sylmar Station via San Fernando Rd	Hill St at 3rd St	75	27	16	15	20	60	55	150	165
Silver	Harbor Gateway Transit Center - El Monte	NB: Olive St at 5th St SB: Grand Ave at 5th St	75	24	18	19	13	56	62	644	667
LADOT DASH											
B	Chinatown - Financial District	Grand Ave at 4th St	30	7	5	2	2	28	28	154	154
D	Union Station - South Park	NB: Main St at 4th St SB: Spring St at 4th St	30	7	19	3	6	27	24	203	180
LADOT Commuter Express											
419	Chatsworth - Northridge - Granada Hills - Mission Hills - Downtown Los Angeles	Hill St at 4th St	49	N/A	21	N/A	15	--	34	--	68
Foothill Transit											
SS	Silver Streak - Montclair - Downtown Los Angeles	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	*Ridership Data Information not Currently Available*							
Torrance Transit											
4X	Torrance - Downtown Los Angeles	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	*Ridership Data Information not Currently Available*							

TABLE 3A (CONTINUED)
TRANSIT SYSTEM CAPACITY IN STUDY AREA - MORNING PEAK HOUR

Provider, Route, and Service Area		Stop Location	Capacity per Trip [a]	Peak Hour Ridership [b]				Average Remaining Capacity per Trip		Remaining Peak Hour Capacity	
				Peak Load		Average Load					
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Montebello Bus Lines											
40	Montebello - Whittier - Downtown Los Angeles	Hill St at 5th St	50	*Ridership Data Information not Currently Available*							
50	La Mirada - Downtown Los Angeles	Hill St at 5th St	50	*Ridership Data Information not Currently Available*							
90	Montebello - Whittier - Downtown Los Angeles	Hill St at 5th St	50	*Ridership Data Information not Currently Available*							
									Total Remaining Peak Hour Bus Ridership Capacity	**15,607**	
Metro Rail Service											
B/D	Downtown Los Angeles - North Hollywood Downtown Los Angeles - Koreatown	Pershing Square	1250	268	582	220	462	1,030	788	3,090	2,364
									Total Remaining Peak Hour Rail Ridership Capacity	**5,454**	
									Total Remaining Peak Hour Transit Ridership Capacity	**21,061**	

Notes:
Metro: Los Angeles County Metropolitan Transportation Authority
LADOT DASH: Los Angeles Department of Transportation Downtown Area SHuttle.
[a] Capacity assumptions:
Metro Bus - 40 seated / 50 seated and standing
Metro Articulated Bus - 66 seated / 75 seated and standing
LADOT DASH - 25 seated / 30 seated and standing
LADOT Commuter Express Bus - 49 seated
Foothill Transit - 50 seated and standing
Torrance Transit - 50 seated and standing
Montebello Bus Lines - 50 seated and standing
Metro Purple Line - 55 seats / car, 4 cars / run during peak periods. Metro assumes a maximum capacity of 230% of seated capacity, or approximately 125 / car
Metro Red Line - 55 seats / car, 6 cars / run during peak periods. Metro assumes a maximum capacity of 230% of seated capacity, or approximately 125 / car
[b] Ridership information based on data from Metro and LADOT for 2019.

TABLE 3B
TRANSIT SYSTEM CAPACITY IN STUDY AREA - AFTERNOON PEAK HOUR

Provider, Route, and Service Area		Stop Location	Capacity per Trip [a]	Peak Hour Ridership [b]				Average Remaining Capacity per Trip		Remaining Peak Hour Capacity	
				Peak Load		Average Load					
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Metro Bus Service											
2	Downtown Los Angeles - Pacific Palisades via Sunset Bl	NB: Hill St at 4th St SB: Broadway at 3rd St	50	12	26	10	19	40	31	160	78
4	Downtown Los Angeles - West Los Angeles - Santa Monica via Santa Monica Bl	NB: Hill St at 4th St SB: Broadway at 3rd St	50	15	36	11	22	39	28	224	119
10	Downtown Los Angeles - West Hollywood via Temple St & Melrose Ave	Hill St at 4th St	50	24	31	18	24	32	26	168	124
14-37	Downtown Los Angeles - Beverly Hills via Beverly Boulevard	NB: Olive St at 5th St SB: Grand Ave at 3rd St	50	23	20	22	13	28	37	203	287
16-316	Downtown Los Angeles - Century City via 3rd Street	NB: Hill St at 6th St SB: Grand Ave at 5th St	50	9	35	7	27	43	23	484	270
18	Downtown Los Angeles/Montebello - Downtown Los Angeles/Wilshire/Western Station via 6th Street & Whittier Boulevard	NB: Hill St at 6th St SB: Grand Ave at 5th St	50	28	41	24	34	26	16	156	132
28	Downtown Los Angeles - Century City via W Olympic Boulevard	NB: Hill St at 3rd St SB: Spring St at 4th St	50	21	16	18	14	32	36	120	126
30	Downtown Los Angeles - Indiana Station via San Vicente Boulevard, Pico Boulevard & E 1st Street	NB: Broadway at 4th St SB: Spring St at 3rd St	50	23	15	9	8	41	42	308	389
40	Downtown Los Angeles - South Bay Galleria via King-Hawthorne	NB: Broadway at 4th St SB: Spring St at 4th St	50	14	24	11	16	39	34	156	145
45	Lincoln Heights - Downtown Los Angeles - Rosewood via Broadway	NB: Broadway at 3rd St SB: Spring St at 4th St	50	20	19	16	13	34	37	196	241
48	Downtown Los Angeles - Avalon Station via Main St & San Pedro St	Hill St at 4th St	50	*Ridership Data Information not Currently Available*							
53	Downtown Los Angeles - CSU Dominguez Hills via Central Avenue	EB: Grand Ave at 5th St WB: Grand Ave at 3rd St	50	4	6	3	3	47	47	200	282
60	Downtown Los Angeles - Artesia Station via Long Beach Boulevard, Owl Service to Downtown Long Beach	NB: Olive St at 7th St SB: Grand Ave at 3rd St	50	16	13	12	5	38	45	285	338
62	Downtown Los Angeles - Hawaiian Gardens via Telegraph Road	NB: Grand Ave at 5th St SB: Hill St at 6th St	50	4	19	2	14	48	36	144	72
68	Downtown Los Angeles - Montebello via Cesar E Chavez Ave	NB: Main St at 5th St SB: Spring St at 4th St	50	15	7	14	6	36	44	126	154
70	Downtown Los Angeles - El Monte via Garvey Avenue	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	21	13	17	12	33	38	132	171
71	Downtown Los Angeles - Cal State LA via Wabash Avenue & City Terrace Drive	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	12	7	10	6	40	44	70	77
76	Downtown Los Angeles - El Monte via Valley Boulevard	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	18	8	14	7	36	43	144	183
78-79-378	Downtown Los Angeles - Arcadia via Las Tunas Drive/Huntington Drive	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	22	13	15	16	35	34	254	187
81	Eagle Rock - Downtown Los Angeles - Harbor Freeway Station via Figueroa Street	Hill St at 4th St	50	24	22	22	19	28	31	133	171
83	Downntown Los Angeles - Eagle Rock via York Bl & Pasadena Ave	NB: Hill St at 3rd St SB: Spring St at 4th St	50	23	5	22	5	28	45	63	79
90-91	Downtown Los Angeles - Sunland - Olive View Medical Center via Glendale Ave & Foothill Bl	NB: Hill St at 3rd St SB: Hill St at 4th St	50	38	15	29	12	21	38	79	143

TABLE 3B (CONTINUED)
TRANSIT SYSTEM CAPACITY IN STUDY AREA - AFTERNOON PEAK HOUR

Provider, Route, and Service Area		Stop Location	Capacity per Trip [a]	Peak Hour Ridership [b]				Average Remaining Capacity per Trip		Remaining Peak Hour Capacity	
				Peak Load		Average Load					
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Metro Bus Service											
92	Burbank - Downtown Los Angeles via Glendale Bl & Brand Bl	NB: Main St at 3rd St SB: Spring St at 4th St	50	12	9	9	7	41	43	92	97
94	Downtown Los Angeles - Sun Valley via San Fernando Rd	NB: Hill St at 4th St SB: Hill St at 3rd St	50	23	16	23	15	27	35	61	88
96	Downtown Los Angeles - Burbank Station via Riverside Drive & LA Zoo	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	10	6	10	10	40	40	80	70
442	Downtown Los Angeles - Hawthorne/Lennox Station via Manchester Boulevard	NB: Olive St at 5th St SB: Grand Ave at 3rd St	50	N/A	8	N/A	8	N/A	42	N/A	42
460	Downtown Los Angeles - Disneyland via Harbor Transitway & I-105 Freeway	NB: Grand Ave at 5th St SB: Hill St at 6th St	50	19	5	19	4	31	46	62	127
487-489	Downtown Los Angeles - Sierra Madre Villa Station - El Monte Station	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	31	9	20	8	30	42	128	63
720	LA/Commerce - Santa Monica via Wilshire Bl & Whittier Bl	EB: Broadway at 6th St WB: Broadway at 5th St	75	41	34	23	26	52	49	702	282
728	Downtown Los Angeles - Century City via West Olympic Bl	EB: Hill St at 3rd St WB: Spring St at 3rd St	75	6	11	6	6	69	69	293	276
745	Downtown Los Angeles - Harbor Freeway Station via Broadway	EB: Broadway at 3rd St WB: Spring St at 4th St	75	9	15	7	11	68	64	374	368
760	Downtown Los Angeles - Long Beach via Pacific Bl	NB: Olive St at 7th St SB: Grand Ave at 5th St	75	12	5	10	3	65	72	260	270
770	Downtown Los Angeles - El Monte Station via Garvey Boulevard & Caesar E Chavez Avenue	NB: Olive St at 5th St SB: Grand Ave at 5th St	75	22	9	19	19	56	56	224	224
794	Downtown Los Angeles - Sylmar Station via San Fernando Rd	Hill St at 3rd St	75	24	13	24	12	51	63	115	158
Silver	Harbor Gateway Transit Center - El Monte	NB: Olive St at 5th St SB: Grand Ave at 5th St	75	30	41	20	28	55	47	605	517
LADOT DASH											
B	Chinatown - Financial District	Grand Ave at 4th St	30	10	6	3	2	27	28	149	154
D	Union Station - South Park	NB: Main St at 4th St SB: Spring St at 4th St	30	22	8	6	2	24	28	180	210
LADOT Commuter Express											
419	Chatsworth - Northridge - Granada Hills - Mission Hills - Downtown Los Angeles	Hill St at 4th St	49	*Ridership Data Information not Currently Available*							
Foothill Transit											
SS	Silver Streak - Montclair - Downtown Los Angeles	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	*Ridership Data Information not Currently Available*							
Torrance Transit											
4X	Torrance - Downtown Los Angeles	NB: Olive St at 5th St SB: Grand Ave at 5th St	50	*Ridership Data Information not Currently Available*							

TABLE 3B (CONTINUED)
TRANSIT SYSTEM CAPACITY IN STUDY AREA - AFTERNOON PEAK HOUR

Provider, Route, and Service Area		Stop Location	Capacity per Trip [a]	Peak Hour Ridership [b]				Average Remaining Capacity per Trip		Remaining Peak Hour Capacity	
				Peak Load		Average Load					
				NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB	NB/EB	SB/WB
Montebello Bus Lines											
40	Montebello - Whittier - Downtown Los Angeles	Hill St at 5th St	50	*Ridership Data Information not Currently Available*							
50	La Mirada - Downtown Los Angeles	Hill St at 5th St	50	*Ridership Data Information not Currently Available*							
90	Montebello - Whittier - Downtown Los Angeles	Hill St at 5th St	50	*Ridership Data Information not Currently Available*							
Total Remaining Peak Hour Bus Ridership Capacity										**13,844**	
Metro Rail Service											
B/D	Downtown Los Angeles - North Hollywood Downtown Los Angeles - Koreatown	Pershing Square	1250	704	443	525	368	725	882	2,175	2,646
Total Remaining Peak Hour Rail Ridership Capacity										**4,821**	
Total Remaining Peak Hour Transit Ridership Capacity										**18,665**	

Notes:

Metro: Los Angeles County Metropolitan Transportation Authority

LADOT DASH: Los Angeles Department of Transportation Downtown Area SHuttle.

[a] Capacity assumptions:

- Metro Bus - 40 seated / 50 seated and standing
- Metro Articulated Bus - 66 seated / 75 seated and standing
- LADOT DASH - 25 seated / 30 seated and standing
- LADOT Commuter Express Bus - 49 seated
- Foothill Transit - 50 seated and standing
- Torrance Transit - 50 seated and standing
- Montebello Bus Lines - 50 seated and standing
- Metro Purple Line - 55 seats / car, 4 cars / run during peak periods. Metro assumes a maximum capacity of 230% of seated capacity, or approximately 125 / car
- Metro Red Line - 55 seats / car, 6 cars / run during peak periods. Metro assumes a maximum capacity of 230% of seated capacity, or approximately 125 / car

[b] Ridership information based on data from Metro and LADOT for 2019.

TABLE 4
RELATED PROJECTS

No	Project Name	Address	Description	Trip Generation [a]						
				Daily	Morning Peak Hour			Afternoon Peak Hour		
					In	Out	Total	In	Out	Total
1 [e]	Equity Residential Mixed-Use	340 S Hill St	406 apartment units, 22 affordable units, 2,980 sf office, and 2,630 sf retail	2,253	36	129	165	133	75	208
2 [b] [e]	5th & Olive (formerly Park Fifth Project)	437 S Hill St	660 condominium units and 13,742 sf restaurant	4,707	71	273	344	279	158	437
3 [b] [e]	Mixed-Use	400 S Broadway	450 apartment units, 6,904 sf of retail, and 5,000 sf bar	3,292	50	187	237	193	112	305
4 [e]	4th & Spring Hotel	361 S Spring St	315 hotel rooms and 2,000 sf meeting space	2,273	91	59	150	84	85	169
5 [e]	5th & Hill	323 W 5th St	190 room hotel, 6,100 sf of meeting room, 31 apartment units, and 29,200 sf restaurant	2,809	73	49	122	126	100	226
6 [d] [e]	Grand Avenue Project	100 S Grand Ave	412 apartment units, 1,648 condominium units, 225,300 sf retail, 53,000 sf supermarket, 67,000 sf restaurant, 50,000 sf health club, 250-seat event facility, 275 hotel rooms, and 681,000 sf office	21,631	919	632	1,551	1,120	1,344	2,464
7 [b] [e]	Hellman / Banco Building	354 S Spring St	212 apartment units	1,410	22	86	108	85	46	131
8	Tribune (LA Times) South Tower Project	222 E 2nd St	107 condominium units, 534,044 sf office, and 7,200 sf retail	4,006	467	93	560	118	423	541
9 [e]	433 S Main Street	433 S Main St	196 condominium units, 5,300 sf retail, and 900 sf restaurant	1,450	32	72	104	61	37	98
10 [e]	Medallion Phase 2	300 S Main St	471 apartment units, 27,780 sf restaurant, and 5,190 sf retail	4,691	143	243	386	257	153	410
11	Mixed-Use (Times Mirror Square)	100 S Broadway	1,127 apartment units, 285,088 sf of office, 50,000 sf supermarket, and 75,589 sf restaurant	8,535	94	341	435	294	38	332
12	Budokan of Los Angeles	237 S Los Angeles St	43,453 sf sports complex	1,869	79	50	129	161	98	259
13	Mixed-Use	601 S Main St	452 apartment units and 25,000 sf of retail	2,686	36	144	179	152	87	238
14	Spring St Hotel	633 S Spring St	176 hotel rooms, 5,290 sf of bar, and 8,430 sf restaurant	2,045	83	33	116	97	99	196
15	Broadway Mixed-Use	955 S Broadway	163 apartment units and 6,406 sf of retail	1,275	21	72	93	74	43	117
16 [b] [c]	Wilshire Grand Project	900 W Wilshire Blvd	560 hotel rooms, 100 apartment units, 150,000 sf of office and 275,000 sf retail/restaurant	3,624	725	75	800	94	764	858
17	LA Civic Center Office	150 N Los Angeles St	712,500 sf of office, 35,000 sf retail, and 2,500 sf child care	13,534	930	118	1,048	435	942	1,377
18 [b]	Mixed-Use	737 S Spring St	320 apartment units and 25,000 sf pharmacy/drugstore	3,942	72	141	213	167	116	283
19 [b]	Mixed-Use	732 S Spring St	400 apartment units and 15,000 sf of retail	3,359	59	152	211	164	104	268
20	8th/Grand/Hope Project	754 S Hope St	409 condominium units and 7,329 sf retail	2,315	35	137	172	137	78	215
21	Beaudry Ave & 2nd St Mixed-Use Project	130 S Beaudry Ave	220 apartment units and 9,000 sf of other	1,159	8	76	84	76	29	105
22 [b]	Mixed-Use	820 S Olive St	589 apartment units and 4,500 sf of retail	3,309	63	202	265	195	106	301
23	Mixed-Use	840 S Olive St	303 condominium units and 9,680 sf restaurant	3,071	81	166	247	174	96	270
24	7th & Maple Mixed-Use	701 S Maple Ave	452 apartment units, 6,800 sf of retail, and 6,800 sf restaurant	3,199	67	179	246	185	105	290
25	Mitsui Fudosan (Eighth and Figueroa Tower)	744 S Figueroa St	436 apartment units, 3,750 sf restaurant, and 3,750 sf retail	2,644	37	146	183	158	86	244
26	945 W 8th Street	945 W 8th St	781 apartment units, and 6,700 sf of commercial	2,869	63	146	209	144	91	235
27	Mixed-Use	755 S Los Angeles St	60,243 sf of office, 16,694 sf retail, and 26,959 sf restaurant	2,482	110	57	167	105	100	205
28	Alexan South Broadway	850 S Hill St	305 apartment units, 3,500 sf retail, and 3,500 sf restaurant	1,998	29	108	137	117	67	184
29	845 Olive & 842 Grand Mixed-Use	845 S Olive St	208 apartment units and 2,430 sf of retail	1,305	25	76	101	77	42	119
30	Embassy Tower	848 S Grand Ave	420 condominium units and 38,500 sf retail	3,882	66	144	210	212	165	377

TABLE 4 (CONTINUED)
RELATED PROJECTS

No	Project Name	Address	Description	Trip Generation [a]						
				Daily	Morning Peak Hour			Afternoon Peak Hour		
					In	Out	Total	In	Out	Total
31	Southern California Flower Market Project	755 S Wall St	323 apartment units, 53,200 sf office, and 8,820 sf commercial	2,499	112	79	191	164	141	305
32	Tenten Wilshire Expansion (the Icon)	1027 W Wilshire Blvd	402 condominium units and 4,728 sf retail	1,498	21	92	113	83	53	136
33	Weingart Tower - Affordable Housing	554 S San Pedro St	378 affordable / 4-market-rate apartment units, 1,758 sf retail, 4,410 sf office, and 5,932 sf flex	629	30	29	59	31	32	63
34	1018 W Ingraham St	1018 W Ingraham St	43 apartment units and 7,400 sf retail	602	8	21	29	31	23	54
35	Mixed-Use	609 E 5th St	151 apartment units	1,004	15	62	77	61	33	94
36	Sapphire Mixed-Use (Revised)	1111 W 6th St	362 apartment units and 25,805 sf retail	587	(71)	117	46	104	(51)	53
37	600 S San Pedro St	600 S San Pedro St	303 apartment units and 19,909 sf commercial	636	38	25	63	30	37	67
38	Hill Street Mixed-Use	920 S Hill St	239 apartment units and 5,400 sf retail	1,476	23	84	107	87	50	137
39	Ferrante	1000 W Temple St	1,500 apartment units and 30,000 sf retail	11,256	170	622	792	658	383	1,041
40	655 S San Pedro Street Residential	655 S San Pedro St	81 apartment units	539	8	33	41	33	17	50
41 b]	Broadway Palace	928 S Broadway	667 apartment units, 17 condominium units, and 58,800 sf retail	4,715	21	229	250	272	109	381
42 [b]	La Plaza Cultura Village	527 N Spring St	345 apartment units, 23,000 sf of retail, 21,000 sf specialty retail, and 11,000 sf restaurant	3,585	49	118	167	189	131	320
43	Mixed-Use	1322 W Maryland St	47 apartment units and 760 sf retail	345	6	19	25	20	12	32
44	Mixed-Use	700 W Cesar Chavez Ave	300 apartment units and 8,000 sf retail	1,511	7	89	96	99	54	153
45	Hotel & Apartments	675 S Bixel St	422 apartment units, 126 hotel rooms, and 4,874 sf retail	3,461	74	173	247	184	116	300
46	949 S Hope Street Mixed-Use Development	949 S Hope St	236 apartment units and 5,954 sf retail	791	8	45	53	43	7	50
47	940 S Hill Mixed-Use	940 S Hill St	232 apartment units and 14,000 sf of retail	1,881	20	80	100	115	53	168
48	Residential	350 S Figueroa St	570 apartment units	965	4	101	105	72	23	95
49	333 S Figueroa St	333 S Figueroa St	224 apartment units, 242 condominium units, 599 hotel rooms, and 28,705 sf commercial	4,997	113	161	274	221	188	409
50	Figueroa Centre	911 S Figueroa St	220 hotel rooms, 200 apartment units, and 94,080 sf commercial	7,141	145	164	309	316	289	605

Notes:

[a] Source: Related project information based on available information provided by LADOT (August 9, 2019), Department of City Planning, and recent studies in the area. Related projects include developments within a 0.75-mile radius of the Project Site and is consistent with LADOT's *Transportation Assessment Guidelines* .

[b] Although construction of the related project may be complete, the project was not fully occupied at the time of the NOP or when traffic counts were conducted. Therefore, the related project was considered and listed to provide a more conservative analysis.

[c] The project description and trip generation information is based on *Transportation Study for the Wilshire Grand Redevelopment Project* (Gibson Transportation Consulting, Inc., April 2010), which was reviewed and approved by LADOT in April 2010. The project that was ultimately constructed contains a reduced development program (889 hotel rooms, 369,299 sf of office, 34,765 sf retail/restaurant and 46,170 sf of ancillary uses). Thus, the assumptions are conservative.

[d] The project information encompasses the full project, including the completed portions of Parcels L and M-2, and is based on the *Final Environmental Impact Report for the Grand Avenue Project* (Christopher A. Joseph & Associates, November 2006). Although the project has been revised as detailed in *Second Addendum to the Certified EIR The Grand Avenue Project* (Christopher A. Joseph & Associates, April 2014), the project proposed in the Final EIR is more conservative and was therefore considered in the analysis.

[e] Related projects are located within one-quarter mile of Project Site.

Chapter 3
CEQA Analysis of Transportation Impacts

This chapter presents the results of an analysis of transportation impacts according to the CEQA Guidelines and applicable rules. The analysis identifies any potential conflicts the proposed Project may have with adopted City plans and policies and the improvements associated with the potential conflicts as well as the results of a Project vehicle miles traveled (VMT) analysis. The analysis also satisfies State requirements under *State of California Senate Bill 743* (Steinberg, 2013) (SB 743).

METHODOLOGY

SB 743, made effective in January 2014, required the Governor's Office of Planning and Research to change the CEQA guidelines regarding the analysis of transportation impacts. Under SB 743, the focus of transportation analysis shifts from driver delay (level of service [LOS]) to VMT, in order to reduce of greenhouse gas emissions (GHG), create multimodal networks, and promote mixed-use developments.

To adapt to SB 743, the Los Angeles City Planning Commission, on February 28, 2019, recommended the approval of revised Los Angeles CEQA guidelines to include new transportation analysis screening procedures and thresholds, subsequently approved by the Los Angeles City Council on July 30, 2019. LADOT's TAG defines the methodology for analyzing a project's transportation impacts in accordance with SB 743.

Per the TAG, the CEQA transportation analysis contains the following thresholds for identifying significant impacts:

- *Threshold T-1: Conflicting with Plans, Programs, Ordinances, or Policies*
- *Threshold T-2.1: Causing Substantial Vehicle Miles Traveled (VMT)*

- *Threshold T-2.2: Substantially Inducing Additional Automobile Travel*

- *Threshold T-3: Substantially Increasing Hazards Due to a Geometric Design Feature or Incompatible Use*

The thresholds were reviewed and analyzed, as detailed in the following Sections 3A-3D.

Section 3A: Threshold T-1

Conflicting with Plans, Programs, Ordinances, or Policies Analysis

Threshold T-1 considers whether a project would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadways, bicycle, and pedestrian facilities.

The purpose of Threshold T-1 is to assess whether a project would conflict with an adopted program, policy, plan, or ordinance that protects the environment. In general, transportation policies or standards adopted to protect the environment are those that support multimodal transportation options and a reduction in VMT. Conversely, a project would not result in an impact merely based on whether or not it would implement a particular program, plan, policy, or ordinance. Many of these programs must be implemented by the City over time, and over a broad area, and it is the intention of Threshold T-1 is to ensure that proposed development projects and plans do not preclude the City from implementing adopted programs, plans and policies. A project that generally conforms with, and does not obstruct, the City's development policies and standards will generally be considered consistent.

PLANS, PROGRAMS, ORDINANCES, AND POLICIES

Table 2.1-1 of the TAG provides the City plans, policies, programs, ordinances, and standards relevant in determining project consistency. Table 2.1-2 of the TAG provides a list of questions to help guide whether a project conflicts with the City’s plans, programs, ordinances, or policies. A review of Table 2.1-2 of the TAG is presented in Table C-1 of Appendix C.

The Project is consistent with the City documents listed in Table 2.1-1 of the TAG; therefore, the Project would not result in a significant impact under Threshold T-1. Detailed discussion of the plans, programs, ordinances, or policies related to the Project is provided below.

Mobility Plan

The Mobility Plan combines “complete street” principles with the following primary goals that define the City’s mobility priorities:

- Safety First: Design and operate streets in a way that enables safe access for all users, regardless of age, ability, or transportation mode of choice.
- World Class Infrastructure: A well-maintained and connected network of streets, paths, bikeways, trails, and more provides Angelenos with the optimum variety of mode choices.
- Access for All Angelenos: A fair and equitable system must be accessible to all and must pay particularly close attention to the most vulnerable users.
- Collaboration, Communication, and Informed Choices: The impact of new technologies on our day-to-day mobility demands will continue to become increasingly important to the future. The amount of information made available by new technologies must be managed responsibly in the future.
- Clean Environments and Healthy Communities: Active transportation modes such as bicycling and walking can significantly improve personal fitness and create new opportunities for social interaction, while lessening impacts on the environment.

The Project would be consistent with the relevant components of these mobility goals as detailed in Table C-2 of Appendix C. A summary of these elements is provided below.

In terms of safety, the design includes pedestrian enhancements along the perimeter of the Project Site, with expanded pedestrian walkways and a paseo accessible from public sidewalks, thereby allowing pedestrians to filter through the public areas of the site without crossing vehicle paths. Separate pedestrian and bicycle access to the Project Site would be provided via entrances along Olive Street, 4th Street, and Hill Street to reduce conflicts with vehicles. The Project does not propose modifying, removing, or otherwise affecting existing bicycle infrastructure, and the Project driveways are not proposed along a street with a bicycle facility. All right-of-way, roadway, and dedication widths would be designed to meet the goals and serve the long-term needs of the Mobility Plan. Thus, the Project would provide safe access for all users regardless of mode of choice and would be consistent with the Safety First objective of the Mobility Plan.

As part of the Project’s world class infrastructure, the design provides exceptional pedestrian and bicycle connectivity, along with limited but functional vehicle driveways. On the east side of the property, the Angels Flight funicular travels from Hill Street to Olive Street. A stairway path runs parallel to the funicular tracks, allowing pedestrians to walk up/down if desired. This stairway is within the Project Site and will be improved with a more welcoming and larger entry with integrated theater-style seating on the Hill Street side and an expanded, terraced viewpoint on the Olive Street side for Angels Flight Overlook. The Metro portal located at the southeast corner of the Project Site will not be encroached on by the Project, but the surrounding area will be fortified with landscaping features, pedestrian amenities, short-term bicycle parking, overlook areas, benches and moveable seating, and garden terraces to provide an inviting pedestrian destination to encourage use of the rail system and amenities.

These features will adhere to Metro's requirements for safety, security, accessibility, operations, and maintenance. Paseos that traverse the Project Site internally can be accessed from the public sidewalks, breaking up the existing long stretches of unprotected concrete paths and incorporating landscaping, lighting, and comfortable amenities throughout the property. Truck loading areas are removed from pedestrian and bicycle interaction, accommodated completely on-site from Olive Street. The Project would maintain the designated driveway and roadway width requirements as indicated in the Mobility Plan and the Project would not preclude future roadway improvements proposed in the Mobility Plan. Due to the well-connected vehicular and pedestrian network and facilities provided, the Project would be consistent with the infrastructure goals.

The Project is also committed to encouraging multi-modal transportation alternatives and access for all travel modes to and from the Project Site. The Project provides separate porte-cocheres for residential and hotel passenger loading on-site via the two proposed driveways, as well as short- and long-term bicycle parking to encourage non-motorized travel. The Project promotes transit usage by developing a mixed-use project located atop of the Metro portal and adjacent to a Metro bus stop along Hill Street and offers improved, direct pedestrian linkages. The Project supports residents, hotel guests, employees, and visitors who choose to travel by automobile through the provision of driveways along Olive Street and 4th Street, on-site passenger loading, separate commercial loading, and adequate parking supply to serve demand. All sidewalks, curb ramps, and passages along the Project frontage will meet the standards of the ADA, providing accessibility for all. In addition, the Project includes a mix of land uses to encourage interaction between components within a walkable environment in close proximity to jobs, destinations, and the multitude of neighborhood services available in downtown.

As detailed in Section 3B, the Project would implement and promote TDM strategies to reduce the dependency on single-occupancy vehicles, provide safe and convenient bicycle parking, improved pedestrian networks, and encourage use of transit through enhanced connectivity to existing services. Sufficient off-street parking is provided, consistent with the land use objectives and estimated parking demand. Thus, the Project would be consistent with the Collaboration, Communication, and Informed Choices goal.

To respond to the Mobility Plan objective of providing clean environments and healthy communities, the Project's mix of uses promotes interaction between on-site components as well as other downtown attractions, thereby reducing the overall distances traveled by vehicle. Additionally, the design encourages active transportation for a healthier lifestyle by incentivizing bicycling and walking which contributes to individual health as well as a reduction of vehicle pollutants.

<u>Plan for a Healthy Los Angeles</u>

Plan for a Healthy Los Angeles: A Health and Wellness Element of the General Plan (Los Angeles Department of City Planning, March 2015) introduces guidelines for the City to follow to enhance the City's position as a regional leader in health and equity, encourage healthy design and equitable access, and increase awareness of equity and environmental issues.

A detailed analysis of the Project's consistency with *Plan for a Healthy Los Angeles* is provided in Table C-3 of Appendix C.

As discussed above within the Mobility Plan objectives, the Project prioritizes safety and access for all individuals utilizing the Site through improved pedestrian passages and connectivity to transit and encourages healthy living by promoting bicycling and walking. Further, the Project includes a mix of market rate and affordable housing units, along with local-serving commercial areas, some of which may be used as cultural/civic space for local artists and unique events. The Project does not displace any existing housing; rather, it converts empty land into an active and vibrant mixed-use community with a high-density residential component. As discussed later, the Project is estimated to generate lower VMT per capita for residents and employees than the average for this area, sensibly reducing air pollutants that may affect vulnerable people.

Land Use Element of the General Plan

The City General Plan's Land Use Element contains 35 Community Plans that establish specific goals and strategies for the various neighborhoods across Los Angeles. The Project Site is located within the Bunker Hill portion of the *Central City Community Plan* (Los Angeles Department of City Planning, September 2016).. Additionally, the City is in the process of updating the Central City and the Central City North Community Plans as part of the *Draft Downtown Los Angeles Community Plan* (LADCP, 2019). The Project's consistency with both *Central City Community Plan* and *Draft Downtown Los Angeles Community Plan* are described below.

Central City Community Plan. A detailed analysis of the Project's consistency with *Central City Community Plan* is provided in Table C-4 of Appendix C. The Project would expand housing opportunities near accessible transit, encourage a mix of land uses to create an active downtown destination, encourage traditional and non-traditional sources of open space, support high levels of transit use, and provide employment opportunities. The Project incorporates commercial uses on the ground floor fronting adjacent streets, provides bicycle parking and amenities on-site, and enhances existing pedestrian activity. Landscaped corridors would be implemented through planting of street trees and other landscaped elements along the perimeter of the Project Site. As further discussed in Section 3B, the Project would implement a TDM program that would encourage residents, employees, and patrons of the Project to utilize alternative modes of travel.

Draft Downtown Los Angeles Community Plan. This plan is not adopted at this time. Thus, the information provided herein is for informational purposes only. A detailed analysis of the Project's consistency with *Draft Downtown Los Angeles Community Plan* is provided in Table C-5 of Appendix C. The purpose of *Draft Downtown Los Angeles Community Plan* is to create and implement a vision of the future for downtown Los Angeles. According to regional projections, by year 2040, downtown Los Angeles will be adding approximately 125,000 people, 70,000 housing units, and 55,000 jobs. Per *Draft Downtown Los Angeles Community Plan*, the following "core principles" represent the long-term priorities of the plan:

- Accommodate anticipated growth through Year 2040 in an inclusive, equitable, sustainable, and healthy manner, while supporting and sustaining Downtown's ongoing revitalization
- Reinforce Downtown's jobs orientation
- Grow and support the residential base

- Strengthen neighborhood character
- Promote a transit-, bicycle-, and pedestrian-friendly environment
- Create linkages between districts
- Create world-class streets and public realm

Draft Downtown Los Angeles Community Plan is currently a draft document undergoing refinement and has not yet been adopted. The Project encourages mixed uses and supports infill developments located in proximity to transit. The active ground floor commercial uses along the street frontages, large public open space areas, and pedestrian rest areas improve walkability and connectivity for pedestrian access between transit stations and nearby destinations. All Project parking would be located below the level of Project buildings and all parking areas would be hidden or screened from the street, and pedestrian access would be separate from vehicular access. Further, the Project would implement various TDM strategies to encourage reduction of single-occupancy vehicle trips and support ways to reduce to VMT per capita.

The Project, through its characteristics highlighted above, both supports policies and does not hinder other goals and policies identified in *Draft Downtown Los Angeles Community Plan*. Therefore, the Project is consistent with and would not obstruct the implementation of the policies recommended by *Draft Downtown Los Angeles Community Plan*, should they be adopted.

Specific Plans

The Project is located in the Bunker Hill Urban Renewal Project (Bunker Hill Redevelopment Plan) boundaries as designated by CRA/LA, a Designated Local Authority and successor for the former Community Redevelopment Agency of the City of Los Angeles. The City adopted the Specific Plan to refine and replace the regulations of the Bunker Hill Redevelopment Plan.

The Project is consistent with the permitted uses as identified in the Specific Plan, including multi-family residential units, commercial uses, outdoor eating areas, transit stations and related facilities, and hotels. The Project design would be consistent with the goals of the Specific Plan as the Project would expand housing opportunities and commercial retail, provide employment opportunities, provide connection between public open spaces and pedestrian pathways, and create a transit-friendly environment through active ground floor uses and pedestrian-oriented design.

Los Angeles Municipal Code (LAMC) Section 12.21.A.16

LAMC Section 12.21.A.16 details the bicycle parking requirements for new developments. However, new bicycle parking requirements have been developed by the City and the Project would follow the new requirements set out in Case No. CPC-2016-4216-CA and Council File No. 12-1297-S1. As further detailed in Section 4G, the proposed bicycle parking short-term and long-term supply would satisfy the LAMC requirement for the Project to provide 105 short-term bicycle parking spaces and 270 long-term bicycle parking spaces within the Project's on-site parking facility.

LAMC Section 12.22.A.31

LAMC Section 12.22.A.31 contains the Transit Oriented Communities (TOC) Affordable Housing Incentive Program, which was created to incentivize affordable housing development near transit stations. Incentives are based on the Project's distance from the various modes of transit. The Project includes a mix of market rate and affordable housing units and the Metro portal is located at the southeast corner of the Project Site. Thus, the Project is in an identified Tier 4 (Regional) TOC.

LAMC Section 12.26J

LAMC Section 12.26J, the TDM Ordinance (1993), establishes trip reduction requirements for non-residential projects in excess of 25,000 sf. As detailed in Section 4D, the Project would incorporate TDM measures as part of the project design aimed at encouraging use of alternative transportation modes in line with the requirements set forth in the TDM Ordinance.

LAMC Section 12.37

LAMC Section 12.37 includes the Highway and Collector Street dedication and improvement to the public right-of-way. The Project includes an approximate three-foot dedication along Olive Street to meet the Mobility Plan standards. All other street frontages are fully dedicated. Thus, the Project would be in compliance with LAMC Section 12.37.

Vision Zero

Vision Zero implements infrastructure designed to increase public safety on the most vulnerable City streets. As discussed in Chapter 2, the Project Site is not adjacent to any streets identified in the City's High Injury Network and no Vision Zero Safety Improvements are planned in the vicinity. The Project improvements to the pedestrian environment would not preclude future Vision Zero Safety Improvements by the City. Thus, the Project does not conflict with Vision Zero.

Streetscape Plans

There are no streetscape plans adjacent to the Project Site and, therefore, streetscape plans do not apply to the Project.

Citywide Design Guidelines for Residential, Commercial, and Industrial Development

Citywide Design Guidelines (Los Angeles City Planning Urban Design Studio, October 2019) identifies urban design principles to guide architects and developers in designing high-quality projects that meet the City's functional, aesthetic, and policy objectives and help foster a sense of community. The design guidelines are organized around the following approaches:

Pedestrian-First Design.

- Guideline 1: Promote a safe, comfortable, and accessible pedestrian experience for all.
- Guideline 2: Carefully incorporate vehicular access such that it does not degrade the pedestrian experience.

- Guideline 3: Design projects to actively engage with streets and public space and maintain human scale.

360-Degree Design.

- Guideline 4: Organize and shape projects to recognize and respect surrounding context.
- Guideline 5: Express a clear and coherent architectural idea.
- Guideline 6: Provide amenities that support community building and provide an inviting, comfortable user experience.
- Guideline 7: Carefully arrange design elements and uses to protect site users.

Climate-Adapted Design.

- Guideline 8: Protect the site's unique natural resources and features.
- Guideline 9: Configure the site layout, building massing and orientation to lower energy demand and increase the comfort and well-being of users.
- Guideline 10: Enhance green features to increase opportunities to capture stormwater and promote habitat.

A detailed analysis of the Project's consistency with *Citywide Design Guidelines Plan* is provided in Table C-6 of Appendix C. The Project design includes accessible sidewalks, pedestrian amenities, and well-designed vehicular access driveways in accordance with the City's design considerations. The Project design also includes pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, and a pedestrian paseo. In addition, adequate sidewalks along Olive Street and 4th Street would be provided in accordance with the City's Living Streets design considerations. Thus, canopy trees and other landscaping elements would be incorporated to provide adequate shade and habitat to provide a more comfortable mobility environment for pedestrians. Further, the orientation of the Project design and active ground floor facilities ensures that the Project actively engages with the street and its surrounding uses. Thus, the Project would align with the Pedestrian-First Design goal.

The Project design also includes elements that reinforce orientation to the street, such as glass windows and easily recognizable entrances. The Project would provide landscaped spaces along 4th Street and Hill Street, enhancing the inviting and comfortable user experience of the Project Site. Thus, the Project would align with the 360-Degree Design goal.

The Project would incorporate elements of shade, natural light, and ventilation as considerations in the building orientation and design. Further, the Project would incorporate trees and landscaped areas to provide shaded spaces for community benefits. Thus, the Project would align with the Climate-Adapted Design goal.

The Project would align with *Citywide Design Guidelines* to provide a safe, comfortable, and accessible experience for all transportation modes.

Walkability Checklist

City of Los Angeles Walkability Checklist – Guidance for Entitlement Review (LADCP, November 2008) (Walkability Checklist) serves as a guide for creating improved conditions for pedestrians to travel and contribute to the overall walkability of the City and includes the following topics:

- Sidewalks
- Crosswalks/Street Crossings
- On-Street Parking
- Utilities
- Building Orientation
- Off-Street Parking and Driveways
- On-Site Landscaping
- Building Façade
- Building Signage and Lighting

A detailed analysis of the Project's consistency with the Walkability Checklist is provided in Table C-7 of Appendix C. The Project incorporates many of the recommended strategies applicable to residential and commercial developments, including but not limited to providing continuous and adequate sidewalks along the Project Site, enhancing pedestrian amenities through additional pedestrian pathways and paseos, providing canopy trees and other landscape elements to provide adequate shade and habitat to for a more comfortable mobility environment for pedestrians, designing primary entrances with direct, visible access for pedestrians and ADA accessibility, and locating parking underground rather than exposed to those traveling on adjacent streets.

LADOT Transportation Technology Strategy – Urban Mobility in a Digital Age

The LADOT transportation technology strategy, based on *Urban Mobility in a Digital Age: A Transportation Technology Strategy for Los Angeles* (Ashley Z. Hand, August 2016) (Transportation Technology Strategy), is designed to ensure the City stays on top of emerging transportation technologies as both a regulator and a transportation service provider. This strategy document includes the following goals:

- Data as a Service: Providing and receiving real-time data to improve the City's ability to serve transportation needs
- Mobility as a Service: Improving the experience of mobility consumers by encouraging partnerships across different modes and fostering clear communication between transportation service providers
- Infrastructure as a Service: Re-thinking how the City pays for, maintains, and operates public, physical infrastructure to provide more transparency

LADOT also developed the *Technology Action Plan* (2019) to realize the vision developed in the Transportation Technology Strategy. Key action steps include:

- Develop a comprehensive digital inventory of the City's signs, parking meters, curb paint, and regulatory tools
- Continue to develop and maintain the Automated Traffic Surveillance and Control (ATSAC) system
- Use active management strategies to dynamically monitor and control things like speed limits, parking availability, detour routes, etc.
- Develop a mobility data specification around which software tools can be developed and data can be accessed
- Develop a transportation tax model that minimizes data collection and retention in favor of user privacy

The Project does not interfere with any of the general policy recommendations and/or pilot proposals set forth by these documents.

Mobility Hub Reader's Guide

Mobility Hubs: A Reader's Guide (LADCP, 2016) provides guidance for enhancing transportation connections and multi-modal improvements in proximity to new or existing transit stations. The Project adopts several of these components, including bicycle parking that facilitates and encourages bicycling in and around the Project, designs that integrate connections to the existing Metro portal, and ground-floor active uses that support a vibrant and mixed-use environment including a retail land use component.

LADOT Manual of Policies and Procedures (Design Standards)

Manual of Policies and Procedures (LADOT, December 2008) provides plans and requirements for traffic infrastructure features in the City.

The Project does not interfere with any of the policies and procedures contained in this document. Additionally, the Project complies with all applicable LADOT design standards.

CUMULATIVE ANALYSIS

In addition to potential Project-specific impacts, the TAG requires that the Project be reviewed in combination with nearby Related Projects to determine if there may be a cumulatively significant impact resulting from inconsistency with a particular program, plan, policy, or ordinance. In accordance with the TAG, the cumulative analysis must include consideration of any Related Projects within 0.25 miles of the Project Site and any transportation system improvements in the vicinity. Related Projects located within 0.25 miles of the Project Site are identified in Table 4.

Each of the Related Projects considered in this cumulative analysis of consistency with programs, plans, policies, and ordinances would be separately reviewed and approved by the City, including a check for their consistency with applicable policies. Collectively, the Project and the Related Projects add high-density development in a major commercial area with high-quality transit options and high levels of pedestrian activity. Therefore, the Project, together with the Related

Projects identified in Table 4, would not create inconsistencies nor result in cumulative impacts with respect to the identified programs, plans, policies, and ordinances.

Section 3B: Threshold T-2.1
Causing Substantial VMT Analysis

The Mobility Plan sets forth objectives to decrease VMT. There are associated policies related to land use objectives aimed at shortening the distance between housing, jobs, and services, and increasing the availability of housing near transit, which offers more attractive non-vehicle alternatives and reduces vehicular trip making and congestion.

Threshold T-2.1 of the TAG analyzes whether a project causes substantial VMT and is generally applied to land use projects. Specifically, Threshold T-2.1 inquires whether the project would conflict with or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)(1). This subdivision states that (for land use projects) "vehicle miles travelled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high-quality transit corridor should be presumed to cause a less than significant transportation impact." Public Resources Code Section 21064.3 defines a major transit stop as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon commute periods. Here, the Project Site includes an existing major transit stop, the Metro Pershing Square Station. This subdivision also states that a lead agency has discretion to choose the most appropriate method to evaluate the project's VMT.

As the Lead Agency for this project, the City uses the analytical methods established by LADOT to determine impacts. Section 2.2.3 of the TAG states that a residential project would result in a significant VMT impact if it would generate household VMT per capita exceeding 15% below the existing average household VMT per capita for the Area Planning Commission (APC) area in which a project is located. Similarly, a commercial project would result in a significant VMT impact if it would generate work VMT per employee exceeding 15% below the existing average work VMT per employee for the APC area in which the project is located.

The VMT analysis presented below was conducted in accordance with the TAG, which satisfies State requirements under SB 743.

VMT METHODOLOGY

LADOT developed *City of Los Angeles VMT Calculator Version 1.2* (November 2019) (VMT Calculator) to estimate project-specific daily household VMT per capita and daily work VMT per employee for developments within City limits, which are based on the following types of one-way trips:

- Home-Based Work Production: trips to a workplace destination originating from a residential use at the project site
- Home-Based Other Production: trips to a non-workplace destination (e.g., retail, restaurant, etc.) originating from a residential use at the project site
- Home-Based Work Attraction: trips to a workplace destination at the project site originating from a residential use

As detailed in *City of Los Angeles VMT Calculator Documentation* (LADOT and LADCP, November 2019), the household VMT per capita threshold applies to home-based work production and home-based other production trips, and the work VMT per employee threshold applies to home-based work attraction trips, as the location and characteristics of residences and workplaces are often the main drivers of VMT, as detailed in Appendix 1 of *Technical Advisory on Evaluating Transportation Impacts in CEQA* (Governor's Office of Planning and Research, December 2018).

Table 2.2-1 of the TAG details the following daily household VMT per capita and daily work VMT per employee impact criteria for the APC areas:

APC	Daily Household VMT per Capita	Daily Work VMT per Employee
Central	6.0	7.6
East LA	7.2	12.7
Harbor	9.2	12.3
North Valley	9.2	15.0
South LA	6.0	11.6
South Valley	9.4	11.6
West LA	7.4	11.1

Source: TAG (LADOT, July 2019)

The Project Site is located in the Central APC area. The VMT Calculator defines other types of trips generated by the Project, which include Non-Home-Based Other Production (trips to a non-residential destination originating from a non-residential use at the Project Site), Home-Based Other Attraction (trips to a non-workplace destination at the Project Site originating from a residential use), and Non-Home-Based Other Attraction (trips to a non-residential destination at the Project Site originating from a non-residential use). These trip types are not factored into the VMT per capita and VMT per employee thresholds, because these trip types are typically localized and are assumed to have a negligible effect on the VMT impact assessment. However, to ensure a conservative analysis for the Project, these trip types were factored into the calculation of total project VMT for screening purposes when determining whether VMT analysis for the Project would be required.

Travel Behavior Zone (TBZ)

The City developed TBZ categories to determine the magnitude of VMT and vehicle trip reductions that could be achieved through TDM strategies. As detailed in *City of Los Angeles VMT Calculator Documentation*, the development of the TBZs considered the population density, land use density, intersection density, and proximity to transit of each Census tract in the City and are categorized as follows:

1. *Suburban (Zone 1): Very low-density primarily centered around single-family homes and minimally connected street network.*

2. *Suburban Center (Zone 2): Low-density developments with a mix of residential and commercial uses with larger blocks and lower intersection density.*

3. *Compact Infill (Zone 3): Higher density neighborhoods that include multi-story buildings and well-connected streets.*

4. *Urban (Zone 4): High-density neighborhoods characterized by multi-story buildings with a dense road network.*

The VMT Calculator determines a project's TBZ based on the latitude and longitude of the project address. The Project Site is located in an Urban (Zone 4) TBZ.

Trip Lengths

The VMT Calculator estimates trip lengths to and from the Project Site based on information from the City's Travel Demand Forecasting Model, which considers the traffic analysis zone where a project is located to determine the trip length and trip type that factor into the calculation of a project's VMT.

Population and Employment Assumptions

As previously stated, the VMT thresholds identified in the TAG are based on household VMT per capita and work VMT per employee. Thus, the VMT Calculator contains population assumptions developed based on Census data for the City and employment assumptions derived from multiple data sources, including *2012 Developer Fee Justification Study* (Los Angeles Unified School District, 2012), *Trip Generation Manual, 9th Edition* (Institute of Transportation Engineers, 2012), the San Diego Association of Governments Activity Based Model, the United States Department of Energy, and other modeling resources. A summary of population and employment assumptions for various land uses is provided in Table 1 of *City of Los Angeles VMT Calculator Documentation.*

TDM Measures

Additionally, the VMT Calculator measures the reduction in VMT resulting from a project's incorporation of TDM strategies as project design features or mitigation measures. The following seven categories of TDM strategies are included in the VMT Calculator:

1. Parking
2. Transit
3. Education and Encouragement
4. Commute Trip Reductions
5. Shared Mobility
6. Bicycle Infrastructure
7. Neighborhood Enhancement

TDM strategies within each of these categories have been empirically demonstrated to reduce trip-making or mode choice in such a way as to reduce VMT, as documented in *Quantifying Greenhouse Gas Mitigation Measures* (California Air Pollution Control Officers Association, 2010).

Retail and Restaurant Uses

The TAG identifies a special VMT analysis methodology for regional-serving retail projects, defined on page 19 as "retail projects that exceed 50,000 square feet in floor area." For such a project, VMT analysis should be conducted either qualitatively based on a market study demonstrating that the project area is underserved by existing retail options and, thus, the project would reduce VMT by attracting residents and businesses to a closer regional option or quantitively using the City's travel demand forecasting model to compare regional VMT per capita with and without the project in place.

According to the TAG, regional-serving retail can lengthen trips and increase VMT because it is likely to shift business away from local-serving retail options. Conversely, local-serving retail (which includes restaurant space) tends to shorten trips and reduce VMT because it attracts trips from nearby residences and businesses that would otherwise travel further to find suitable options.

The Project includes approximately 72,090 sf of retail and restaurant, which exceeds the 50,000 sf threshold identified in the TAG between local-serving and regional-serving retail. Notwithstanding, the Project does not fit the TAG's definition of a regional-serving retail project, and, therefore, additional VMT analysis of retail and restaurant uses beyond what is provided by the VMT Calculator is not needed. As detailed in the following discussion, the Project is not a retail project, is not regional-serving, and would serve the local community. Thus, the Project was not modeled as a regional-serving retail project.

Not a Retail Project. The TAG's definition of a regional-serving retail project explicitly includes the term "retail project." The Project is a mixed-use development that is primarily made up of residential and hotel uses. The retail and restaurant uses comprise approximately 5.7%[3] of the total Project floor area and are not the primary Project uses. The retail and restaurant space is intended to serve Project residents, hotel guests, and employees, transit riders, and mostly the downtown area and surrounding local community.

Not Regional-Serving. While the Project does include more than 50,000 sf of retail, a larger percentage of the space is expected to be filled by restaurants or other food and beverage service establishments. Patrons would typically only visit a single food service establishment on a given trip and, therefore, a concentration of food options is less of a regional draw than a concentration of shopping options more typically associated with regional-serving retail developments such as malls and retail centers.

The most common patrons for these uses would be people already at the Project Site, in the downtown area, and people in the surrounding communities. People already at the Project Site (i.e., residents, hotel guests, employees, and transit riders) are within easy walking distance of all retail and restaurant uses throughout the Project Site and would generate no vehicle trips while patronizing those uses (i.e., internal trips). People who live close to the Project Site would be the most familiar with the various retail and dining options available and likely walk, take transit, or drive past the Project Site frequently (i.e., transit and pass-by trips). Therefore, nearby residents

[3] The retail and restaurant space comprises 72,090 sf of the total 1,269,150 gross sf of the Project.

can readily stop on their way to or from their homes without making a separate trip to travel to the Project Site.

Based on these factors, the Project's retail space is local-serving and would ultimately result in a net reduction of regional VMT compared to conditions without the Project. Accordingly, the quantitative analysis provided by the VMT Calculator, which accounts for the retail and restaurant square footage in part by assuming an increase of internal trips between different Project land uses, is sufficient to assess VMT for the entire Project.

PROJECT VMT ANALYSIS

The VMT Calculator was used to evaluate Project VMT for comparison to the VMT impact criteria. The VMT Calculator was set up with the Project's land uses and their respective sizes as the primary input (432 multi-family housing units, 515 hotel rooms, 28,836 sf of retail, 21,267 sf of quality restaurant, and 21,267 sf of high-turnover restaurant). The Project is geographically located at: Latitude 34.051352, Longitude -118.250772.

As previously discussed, the methodology inherent in the VMT Calculator accounts for the interaction of land uses within a mixed-use development and considers the sociodemographic, land use, and built environment factors for the Project Site and surrounding area. Specific to the Project, the VMT Calculator takes in consideration of internal interaction between the different land uses on-site. The Project location also considers the adjacent Metro portal, connectivity of walking or driving among different activities, and convenient trip destinations in the urban core of downtown Los Angeles. The Project land use and location information factors are key features that materially reduce single occupancy vehicle trips.

In addition, the Project includes several design features considered as TDM strategies to reduce the number of single occupancy vehicle trips to the Project Site, including compliance with the relatively low minimum vehicle parking requirements contained in the Specific Plan, provision of bicycle parking per LAMC requirements, and enhancement to pedestrian and bicycle amenities on-site. For the purposes of providing a conservative analysis, these Project design features were not taken into consideration in the VMT evaluation.

The VMT analysis results based on the VMT Calculator are summarized in Table 5. Detailed output results from the VMT Calculator is provided in Appendix D.

Project VMT

The Project Site includes a Metro underground transit station. This integrated Metro transit station and the Project Site located in the urban core of downtown Los Angeles are features that materially reduce the single occupancy vehicle trips considered in VMT analysis. More specifically, as shown in Table 5, the VMT Calculator estimates that the Project would generate a daily VMT of 40,033. Thus, based on the population and employee assumptions above, the Project would generate an average Household VMT per capita of 3.9 and an average Work VMT per employee of 7.3, which are below the significance thresholds for the Central APC impact threshold of 6.0 and 7.6, respectively. Therefore, the Project would not result in a significant VMT impact and no mitigation measures would be required. As previously noted, any TDM strategy included as part of the Project design features (provide minimum vehicle parking per the Specific Plan, bicycle parking and pedestrian and bicycle amenities) was conservatively omitted from the VMT Calculator inputs. Thus, the implementation of such TDM strategies would further reduce the Project VMT per capita and VMT per employee.

CUMULATIVE ANALYSIS

The TAG provides that cumulative effects of development projects are determined based on the consistency with the air quality and GHG reduction goals of *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy* (Southern California Association of Governments [SCAG], Adopted April 2016) (RTP/SCS) in terms of development location, density, and intensity. The RTP/SCS presents a long-term vision for the region's transportation system through Year 2040 and balances the region's future mobility and housing needs with economic, environmental, and public health goals. The TAG also explains that the RTP/SCS is the regional plan that demonstrates compliance with air quality conformity requirements and GHG reduction targets. As such, projects that are consistent with this plan in terms of development location, density, and intensity are part of the regional solution for meeting air pollution and GHG goals. Projects that are deemed to be consistent would have a less than significant cumulative impact on VMT. As determined in the other technical reports prepared for the Project, the Project was deemed consistent with the RTP/SCS. Thus, fundamentally, the Project has a less than significant cumulative impact on VMT.

Moreover, as previously detailed, the Project includes an integrated mix of uses, including market rate and affordable multi-family housing units, hotel, and community serving ground floor commercial uses. The Project is well-served by various local and rapid bus lines, as well as the Metro portal located at the southeast corner of the Project Site. In addition, the Project would be designed to further reduce single occupancy trips to the Project Site through various TDM strategies, including the provision of minimum vehicle parking, bicycle parking, and pedestrian and bicycle amenities.

Thus, the Project encourages a variety of transportation options and is consistent with the RTP/SCS goal of maximizing mobility and accessibility in the region. The Project would also contribute to the productivity and use of the regional transportation system by providing housing near transit and encourage active transportation by providing new bicycle parking infrastructure and active street frontages, consistent with RTP/SCS goals. Therefore, the Project would not result in a cumulative VMT impact under Threshold T-2.1, and no further evaluation or mitigation measures would be required.

TABLE 5
VMT ANALYSIS SUMMARY

Project Information	
Project Address	358 S. Olive Street [a]
Project Land Uses	**Size**
Multi-Family Housing	432 units
Hotel	515 rooms
Retail	28,836 sf
Quality Restaurant	21,267 sf
High-Turnover Sit-Down Restaurant	21,267 sf
Project Analysis [b]	
Resident Population	973
Employee Population [c]	488
Project Area Planning Commission	Central
Travel Behavior Zone [d]	Urban
Maximum VMT Reduction [e]	75%
VMT Analysis [f]	
Daily Vehicle Trips	5,410
Daily VMT	40,033
Total Household VMT	3,767
Household VMT per Capita [g]	3.9
Impact Threshold	6.0
Significant Impact	NO
Total Work VMT	3,553
Work VMT per Employee [h]	7.3
Impact Threshold	7.6
Significant Impact	NO

Notes:

[a] Project address latitude and longitude (34.051352, -118.250772) was used in the VMT Calculator.
[b] Project Analysis is from VMT Calculator Version 1.2 output reports provided in Appendix C.
[c] Total population and employment estimates are based on the following factors:
Multi-Family Housing: 2.25 resident population / unit
Hotel: 0.5 employees / room
General Retail: 2.0 employees / 1,000 sf
Quality Restaurant: 4.0 employees / 1,000 sf
High-Turnover Sit-Down Restaurant: 4.0 employees / 1,000 sf
[d] An "Urban" TBZ is characterized in *City of Los Angeles VMT Calculator* Documentation (LADOT and DCP, November 2019) as higher density neighborhoods that include multi-story buildings with a dense road network.
[e] The maximum allowable VMT reduction is based on the Project's designated TBZ.
[f] The Project includes several design features considered as TDm strategies to reduce the number of single occupancy vehicle trips. For the purposes of providing a conservative analysis, these design features were not taken into consideration in the VMT evaluation.
[g] Household VMT per Capita is based on the "home-based work production" trip types.
[h] Work VMT per Employee is based on the "home-based work attraction" trip types.

Section 3C: Threshold T-2.2
Substantially Inducing Additional Automobile Travel Analysis

Threshold T-2.2 applies to transportation projects. The TAG explains that transportation projects that increase vehicular capacity can lead to additional travel on the roadway network, which can include induced vehicle travel due to factors such as increased speeds and induced growth. The TAG also provides screening criteria and states that:

> "[i]f the answer is no to the following question, further analysis will not be required for Threshold T-2.2, and a no impact determination can be made for that threshold:
>
> > "T-2.2: Would the project include the addition of through traffic lanes on existing or new highways, including general purpose lanes, high-occupancy vehicle (HOV) lanes, peak period lanes, auxiliary lanes, and lanes through grade-separated interchanges (except managed lanes, transit lanes, and auxiliary lanes of less than one mile in length designed to improve roadway safety)?"

The Project does not include additional through traffic lanes on existing or new highways, general purpose lanes, high-occupancy vehicle lanes, peak period lanes, auxiliary lanes, or lanes through grade-separated interchanges. Accordingly, neither the Project nor any improvements associated with it are considered a transportation project. Therefore, Threshold T-2.2 does not apply to the Project and no further evaluation is required.

Section 3D: Threshold T-3

Substantially Increasing Hazards Due to a Geometric Design Feature or Incompatible Use Analysis

Impacts regarding the potential increase of hazards due to a geometric design feature generally relate to the design of access points to and from a project site, and may include safety, operational, or capacity impacts. Impacts can be related to vehicle/vehicle, vehicle/bicycle, or vehicle/pedestrian conflicts as well as to operational delays caused by vehicles slowing and/or queuing to access a project site. These conflicts may be created by the driveway configuration or through the placement of project driveway(s) in areas of inadequate visibility, adjacent to bicycle or pedestrian facilities, or too close to busy or congested intersections.

Further evaluation is required for projects that that require a discretionary action and (1) propose new driveways or introduce new vehicle access to the property from public right-of way or (2) propose any voluntary or required modifications to the public right-of-way (i.e., street dedications, reconfigurations of curb line, etc.). The Project requires further evaluation based on these screening criteria. The threshold for determining impacts is whether the Project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

A review of Project access points, internal circulation, and parking access was performed to determine if the Project would substantially increase hazards due to geometric design features, including safety, operational, or capacity impacts. This analysis considered the following factors: (a) the relative amount of pedestrian activity at project access points; (b) design features/physical configurations that affect the visibility of pedestrians and bicyclists to drivers entering and exiting the site, and the visibility of cars to pedestrians and bicyclists; (c) the type of bicycle facilities the project driveway(s) crosses and the relative level of utilization; (d) the physical conditions of the site and surrounding area, such as curves, slopes, walks, landscaping or other barriers, that could result in vehicle/pedestrian, vehicle/bicycle, or vehicle/vehicle impacts; (e) the project location, or project-related changes to the public right-of-way, relative to proximity to the High Injury Network or a Safe Routes to School program area; (f) any other conditions, including the approximate location of incompatible uses that would substantially increase a transportation hazard. These factors are addressed below.

Pedestrian Activity

The Project proposes new driveways along Olive Street and 4th Street, both of which are designated Modified Avenue II in the Mobility Plan and identified as part of the Pedestrian Enhanced Network.

Count data from November 2019 shows approximately 100 pedestrians per peak hour, or less than two per minute, traverse the 4th Street driveway. Vehicular volumes at the driveway are expected to occur at a rate of about five cars per minute in the morning peak hour and 10 cars per minute in the evening peak hour. No unusual queuing issues are evident with this driveway design, particularly as some turn movements are restricted due to the one-way operation of 4th Street, resulting in fewer conflicting travel movements.

Count data from November 2019 shows approximately 50 pedestrians per peak hour, or less than one per minute, cross the Olive Street driveway. Vehicular volumes at the driveway are expected to occur at a rate of about three cars per minute in the morning peak hour and less than two cars per minute in the evening peak hour. No unusual queuing issues are evident with this driveway design, particularly with no left-turn egress, resulting in fewer conflicting travel movements. The Project would also provide separate porte-cocheres for residential and hotel passenger loading on-site and would not use public right-of-way for curbside loading.

Due to the location of the Project and its expected attraction to the adjacent Metro portal and other transit, pedestrian volumes are expected to increase on all sides of the Project. It is recommended that all Project driveways remain clear of hardscapes, vegetation, or signage that would impede sight lines. Sidewalk treatments across the driveways, such as pavement textures, colors, additional lighting, or other informative features that distinguish the driveway are recommended for increased safety and visibility.

Driveway Design Features

Adjacent to the Project Site, 4th Street (one-way eastbound) provides four travel lanes. This driveway is located approximately 210 feet from the approaching traffic on Olive Street and approximately 130 feet west of Hill Street and would accommodate left-turn ingress and egress maneuvers only. The sidewalk width is proposed at 15 feet with a three-foot sidewalk easement that meets the Mobility Plan standard. The driveway width is proposed at approximately 30 feet, consistent with City design standards. While a vertical rise in terrain occurs from Hill Street to Olive Street, this driveway intersects at a right angle to 4th Street and does not propose any hardscape features, walls, or landscaping that would obstruct sight distance or visibility of approaching vehicles, pedestrians, or bicycles.

Olive Street provides five travel lanes adjacent to the proposed driveway, with three northbound lanes (from 3:00- 7:00 PM) and two southbound lanes, as well as a two-way left-turn median. This driveway is located approximately 80 feet north of 4th Street and would accommodate both left and right-turn ingress and right-turn egress maneuvers (no left turns out of the driveway due to the proximity to the intersection of Olive Street & 4th Street). The driveway width is proposed at approximately 30 feet, consistent with City design standards. The sidewalk width is proposed at 15 feet with a three-foot sidewalk easement, consistent with design standards. While this driveway is positioned on a vertical rise within Olive Street, the sight lines allow for more than 300 feet of unobstructed view and no features or design elements are proposed that would impede the ability of drivers to see oncoming vehicles, pedestrians, or bicycles.

All driveways are located near existing signalized traffic signals at the intersection of Olive Street & 4th Street and Hill Street & 4th Street, as well as signalized midblock crosswalks along Olive Street and Hill Street. The traffic signals and midblock crosswalks reduce conflicts and confusion between all road users by providing street marked crosswalks with walk signals and countdown timers.

Bicycle Facilities

Currently, there are no bicycle facilities adjacent to the Project Site. Additionally, no streets adjacent to the Project Site have been identified as part of the Mobility Plan’s Bicycle Network.

Based on existing intersection volume data collected in November 2019, it was observed that Olive Street, 4th Street, and Hill Street carry fewer than 35 bicycles during the entire span of the six-hour commuter peak period (7:00 to 10:00 AM and 3:00 to 6:00 PM), as detailed in Appendix C. Therefore, given the minimal bicycle traffic, the driveways would not pose a safety hazard to bicyclists.

Physical Terrain

The Project Site is located on a slope between Hill Street (low side) and Olive Street (elevated side), which creates vertical rises at all vehicle driveways. However, as stated previously, the vertical rises do not restrict sight lines within 300 feet of the driveways, allowing drivers to safely identify approaching vehicles, pedestrians, and bicycles before committing to turn. Driveways are designed to intersect the sidewalk and street at right angles with adequate building setback to allow pedestrians, bicyclists to observe vehicles within the driveways.

The Project would provide private and public open space, landscaped elements, and street trees for shade along the Project perimeter and within the Project Site to create a walkable and attractive pedestrian environment. Pedestrian sidewalks are provided on all sides fronting the Project Site.

Public Right-of-Way

The Project Site is located in the Bunker Hill area of downtown Los Angeles. The Project Site is not located adjacent to a street identified as part of the High Injury Network. Additionally, the Safe Routes to School map does not identify any infrastructure improvement projects within the Study Area.

Olive Street requires a 96-foot right-of-way width and 66-foot roadway width. The proposed new driveway along Olive Street would require curb cuts onto public right-of-way. Access to the loading dock would also require the installation of a new curb cut along Olive Street. The Project vehicular driveway and truck access to the loading dock along Olive Street would be located approximately

100 feet apart, providing adequate pedestrian refuge between the two driveways. All heavy truck maneuvers occur on-site from Olive Street.

4th Street requires an 81-foot right-of-way width and 51-foot roadway width. The proposed driveway along 4th Street would require the installation of a new curb cut onto public right-of-way. Currently, there are nine metered parking spaces along Olive Street and 10 metered parking spaces along 4th Street. As many as 10 metered spaces would be permanently removed to accommodate driveway installation on 4th Street and Olive Street. Thus, sight distance from the Project driveways would be further enhanced by eliminating vehicles parked close to driveways. The six metered parking spaces along Hill Street adjacent to the Project Site would not be affected as no Project driveway is proposed along this street.

The Project would maintain the designated driveway and roadway width requirements as indicated in the Mobility Plan, and the Project would not preclude future roadway improvements proposed in the Mobility Plan.

Incompatible Uses

The Project sits atop the Metro portal and is located adjacent to Angels Flight funicular railway. These adjacent uses are compatible with the Project. The Metro portal is a transit feature that enhances the Project Site from a mass transit accessibility perspective, and Angels Flight is a historic feature that will not be disturbed by the Project. The Project design incorporates and expands on the surrounding areas to provide a more attractive, well-defined, and accessible interaction between the Project and these uses.

The Angels Flight stairway is within the Project Site and will be improved with a more welcoming and larger entry with integrated theater-style seating on the Hill Street side and an expanded, terraced viewpoint on the Olive Street side for Angels Flight Overlook. The surrounding area of the Metro portal will be enhanced with landscaping features, pedestrian amenities, short-term bicycle parking, overlook areas, benches and moveable seating, and garden terraces.

None of the Project design elements that are tangential to the adjacent uses are considered incompatible. There are no unusual or new obstacles that would be considered hazardous to motorized vehicles, non-motorized vehicles, or pedestrians.

Based on the site plan review and design assumptions, the Project would not substantially increase hazards due to geometric design feature or incompatible uses. Therefore, impacts are considered less than significant.

CUMULATIVE ANALYSIS

In addition to potential Project-specific impacts, the TAG requires that the Project be reviewed in combination with Related Projects with access points along the same block as the proposed project to determine if there may be a cumulatively significant impact. There are currently no identified Related Projects proposed with access points along the same block of the Project. Therefore, the Project would not result in cumulative impacts that would substantially increase hazards due to geometric design features, including safety, operational, or capacity impacts.

Section 3E
Caltrans Analysis

In May 2020, LADOT issued *Interim Guidance for Freeway Safety Analysis* (City Freeway Guidance) identifying City requirements for a CEQA safety analysis of California Department of Transportation (Caltrans) facilities as part of a transportation assessment.

ANALYSIS METHODOLOGY

The City Freeway Guidance relates to the identification of potential safety impacts related to vehicle queuing at freeway off-ramps due to increased traffic from development projects. It provides interim guidance regarding a methodology and significance criteria for assessing whether additional vehicle queueing at off-ramps could result in a safety impact due to speed differentials between the mainline freeway lanes and the queued vehicles at the off-ramp.

Based on the City Freeway Guidance, a transportation assessment for a development project should include analysis of nearby freeway off-ramps serving a project site where a project adds 25 or more morning or afternoon peak hour trips. A project would result in a significant impact at such a ramp if each of the following three criteria were met:

1. Under a scenario analyzing future conditions upon project buildout, with project traffic included, the off-ramp queue would extend to the mainline freeway lanes[4].
2. The project would contribute at least two vehicle lengths (50 feet, assuming 25 feet per vehicle) to the queue.
3. The average speed of mainline freeway traffic adjacent to the off-ramp during the analyzed peak hour(s) is greater than 30 mph.

---

[4] If an auxiliary lane is provided on the freeway, then half the length of the auxiliary lane is added to the ramp storage length.

If a potential safety issue is identified, then, to offset this potential condition, a project should consider preferred corrective measures including TDM strategies to reduce the project's trip generation, investments in active transportation or transit system infrastructure to reduce the project's trip generation, changes to the traffic signal timing or lane assignments at the ramp intersection, or physical changes to the off-ramp. Any physical change to the ramp would have to demonstrate substantial safety benefits, not be a VMT inducing improvement, and not result in environmental issues.

ANALYSIS RESULTS

Based on the Project's trip generation estimates and traffic distribution pattern detailed later in this report, the Project would add 25 or more peak hour trips to three off-ramps during the morning and afternoon peak hours:

- SR 110 Southbound Off-ramp to 4th Street
- SR 110 Northbound Off-ramp to 4th Street
- SR 110 Northbound Off-ramp to 6th Street

In accordance with the applicable methodology, the 95th percentile ramp queue was calculated using the *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016) (HCM) methodology. Conditions were analyzed for the anticipated Project buildout year of 2028, which includes growth and traffic from other related projects, both with and without Project traffic. The summary of queue lengths and off-ramp storage length, along with all analysis worksheets, are provided in Appendix E.

The northbound and southbound off-ramps to 4th Street merge into the eastbound arterial street and provide two additional through lanes. Traffic operates at free-flow conditions until the signalized intersection of Lower Grand Avenue & 4th Street, located approximately 1,200 feet east of the merge point. Thus, the reported 95th percentile queue at the two off-ramps, shown in Appendix Table E-1, are based on the eastbound queue from the signalized intersection stop bar. Although, the individual 95th percentile queue for each off-ramp cannot be determined for the 4th Street ramp connectors due to the uncontrolled merge points, each off-ramp has more than sufficient storage length to accommodate cumulative traffic, both without and with Project traffic.

As shown in Appendix Table E-1, under Future with Project Conditions, the queue at the northbound off-ramp to 6^{th} Street would not exceed the ramp storage length during any of the analyzed peak hours and would therefore not be subject to a speed differential analyses.

The queues at the three off-ramps would not extend onto the freeway mainline and the Project would not cause a significant safety impact. Thus, no mitigation is required.

Chapter 4
Non-CEQA Transportation Analysis

Section 3 of the TAG provides guidance for preparing additional transportation analyses that are not required to determine the CEQA impacts of the Project because VMT is the legally applicable methodology for analyzing traffic, circulation, and transportation impacts. This chapter summarizes the non-CEQA transportation analysis of the Project. It includes Project traffic, proposed access provisions, safety, and circulation operations of the Project, and the adjacent pedestrian, bicycle, and transit facilities. This chapter also summarizes the evaluation of the Project's operational conditions, parking supply and requirements, and effects due to Project construction.

NON-CEQA TRANSPORTATION ANALYSIS METHODOLOGY

Intersection operations were evaluated for typical weekday morning (7:00 AM to 10:00 AM) and afternoon (3:00 PM to 6:00 PM) peak periods. A total of 10 signalized intersections in the vicinity of the Project Site were selected for detailed transportation analysis and are shown in Figure 2.

The following traffic conditions were developed and analyzed as part of this study:

- Existing with Project Conditions: This analysis condition estimates the potential intersection operating conditions that could be expected if the Project were built under existing conditions.
- Future with Project Conditions (Year 2028): This analysis condition estimates the potential intersection operating conditions that could be expected if the Project were occupied in the projected buildout year. In this analysis, the Project-generated traffic is added to Future without Project Conditions (Year 2028).

Operational Evaluation

In accordance with the TAG, the intersection delay and queue analyses for the operational evaluation were conducted using the HCM methodology, which was implemented using Synchro software and signal timing worksheets from the City to analyze intersection operating conditions. The HCM signalized methodology calculates the average delay, in seconds, for each vehicle passing through the intersections. Table 6 presents a description of the LOS categories, which range from excellent, nearly free-flow traffic at LOS A, to stop-and-go conditions at LOS F, for signalized intersections. The queue lengths were estimated using Synchro, which reports the 85th percentile queue length, in feet, for each approach lane. The reported queues are calculated using the HCM signalized intersection methodology.

LOS and queuing worksheets for each scenario are provided in Appendix F.

Section 4A
Project Traffic

Trip generation estimates, trip distribution patterns and trip assignments were prepared for the proposed Project. These components form the basis of the Project's non-CEQA traffic analysis.

PROJECT TRIP GENERATION

With the exception of the residential use, the number of trips generated by the specific land use components of the Project was estimated using rates published in *Trip Generation Manual, 10th Edition.* These rates are based on surveys of similar land uses at sites around the country and are generated for daily rates and morning and afternoon peak hour rates. The rates calculate the number of vehicle trips traveling to and from the Project Site based on the density of each land use component. The residential component was calculated using the LADOT empirical rates for multi-family high-rise residential land uses in dense multi-use urban areas (from TAG Table 3.3-1).

In consultation with LADOT during the MOU process, allowable trip generation reductions were applied to the hotel and commercial uses and are consistent with the TAG. The residential trip rates are based on local data collected in dense urban areas with convenient and frequent transit service and, thus, transit usage is inherent in the rates and no additional trip adjustments related to transit are applied. The trip generation estimates for the retail and restaurant uses were adjusted by a 20% internal capture credit to account for person trips made by residents and hotel guests to the restaurant and shops, as is common within a mixed-use development. Further trip reductions were applied to account for transit usage and walking arrivals from the surrounding neighborhoods and adjacent commercial developments. The Project is located atop of the Metro portal and, thus, in accordance with the TAG, a 25% transit/walk-in adjustment was made to the retail, restaurant, and hotel uses. Consistent with Attachment H of the TAG, a 50% and 20% pass-by reduction was also applied to the retail and restaurant trip generation, respectively, to account for trips made by drivers already passing by the Project Site and stopping on their way to another destination.

As shown in Table 7, after accounting for the adjustments above, the Project is anticipated to generate 398 morning peak hour trips (184 inbound trips, 214 outbound trips) and 585 afternoon peak hour trips (347 inbound trips, 238 outbound trips).

PROJECT TRIP DISTRIBUTION

The geographic distribution of trips generated by the Project is dependent on the location of employment, residential, and commercial centers to and from which patrons of the Project would be drawn, characteristics of the street system serving the Project Site, the location of the Project driveway, and existing traffic conditions.

Based on these considerations, traffic entering and exiting the Project was assigned to the surrounding street system by land use type and access provisions. The intersection-level trip distribution pattern for Project traffic at the study intersections is shown in Figures 12A to 12E for each land use component.

Generally, the regional pattern for the Project residential use portion is as follows:

- 18% to/from the north
- 20% to/from the east
- 40% to/from the south
- 22% to/from the west

The regional pattern for the Project hotel use portion is as follows:

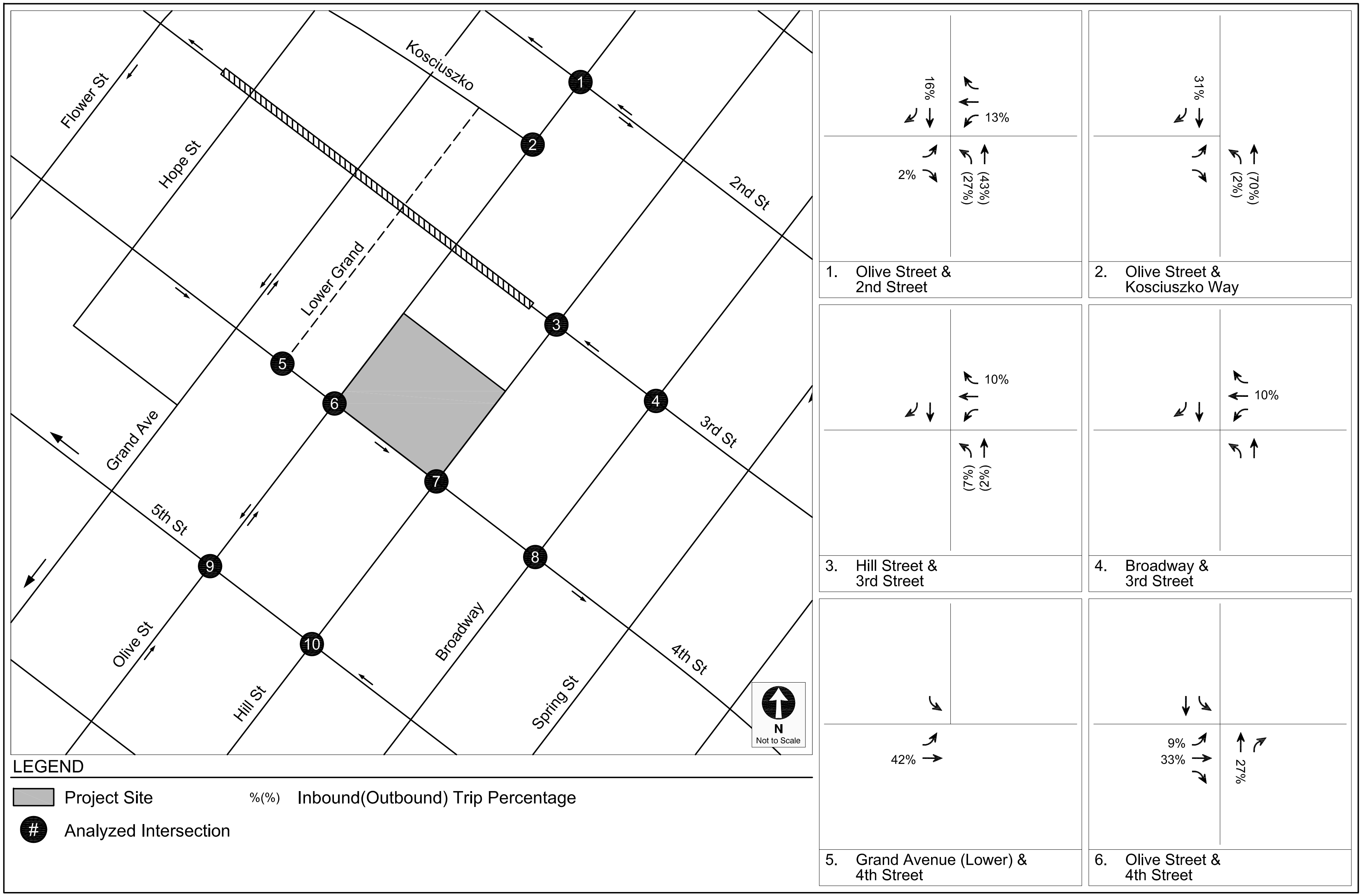
- 10% to/from the north
- 10% to/from the east
- 55% to/from the south
- 25% to/from the west

The regional pattern for the Project commercial use portion is as follows:

- 10% to/from the north
- 20% to/from the east
- 45% to/from the south
- 25% to/from the west

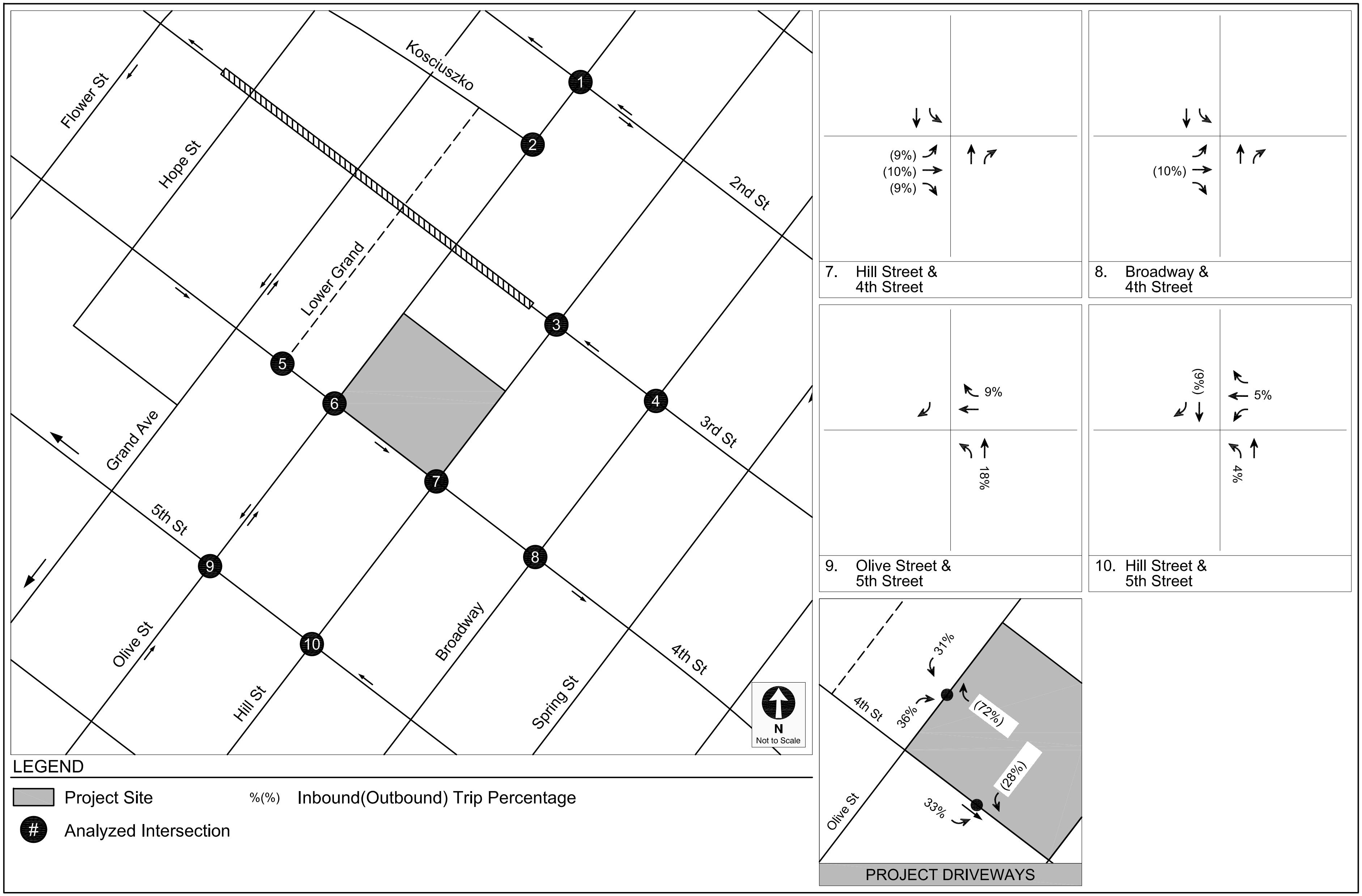
PROJECT TRIP ASSIGNMENT

The Project trip generation estimates summarized in Table 7 and the trip distribution patterns shown in Figures 12A to 12E were used to assign the Project-generated traffic through the study intersections. Figure 13 illustrates the net Project-only traffic volumes for the Project at the study intersections during typical weekday morning and afternoon peak hours.



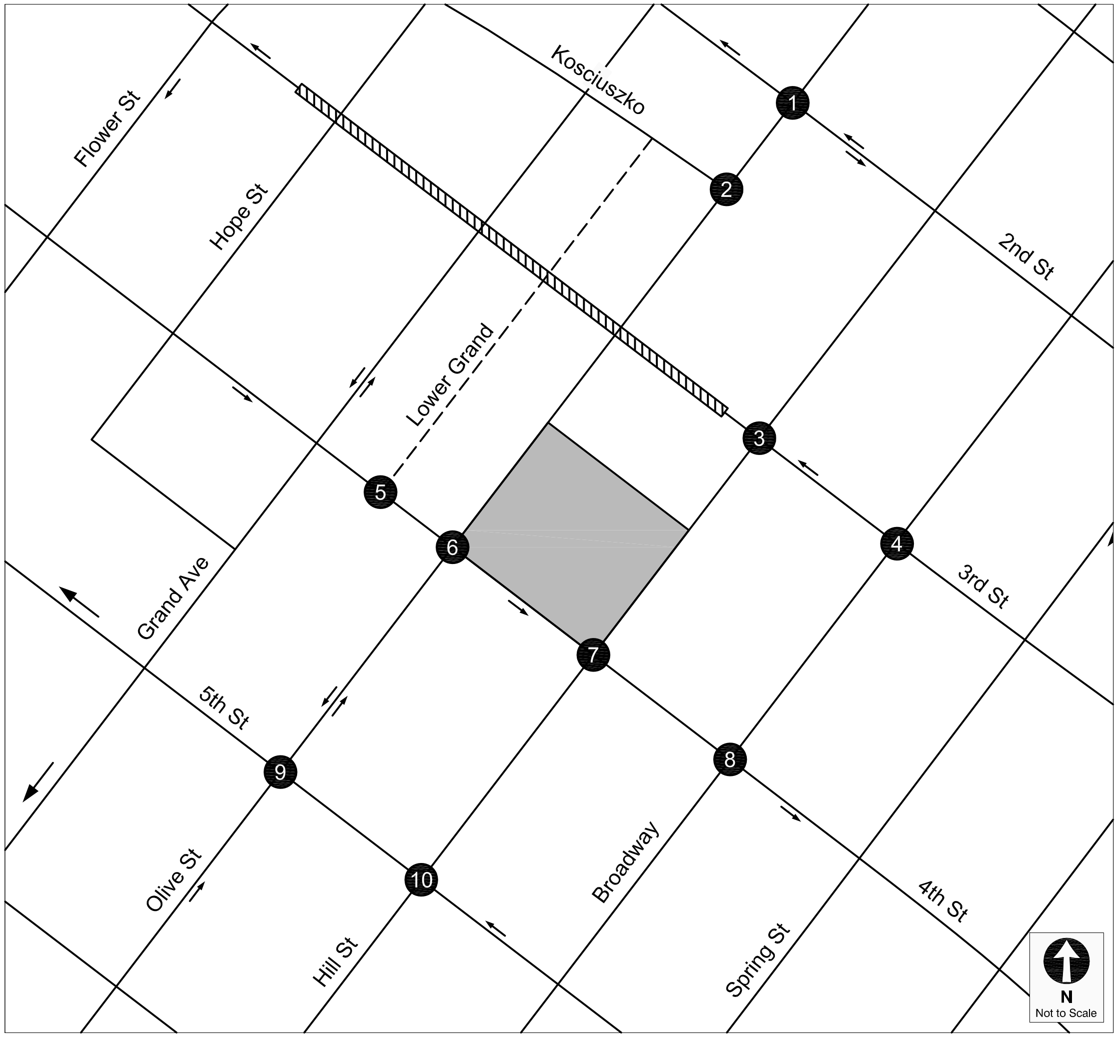
TRIP DISTRIBUTION
RESIDENTIAL

FIGURE
12A



TRIP DISTRIBUTION
RESIDENTIAL

FIGURE
12A(CONT.)

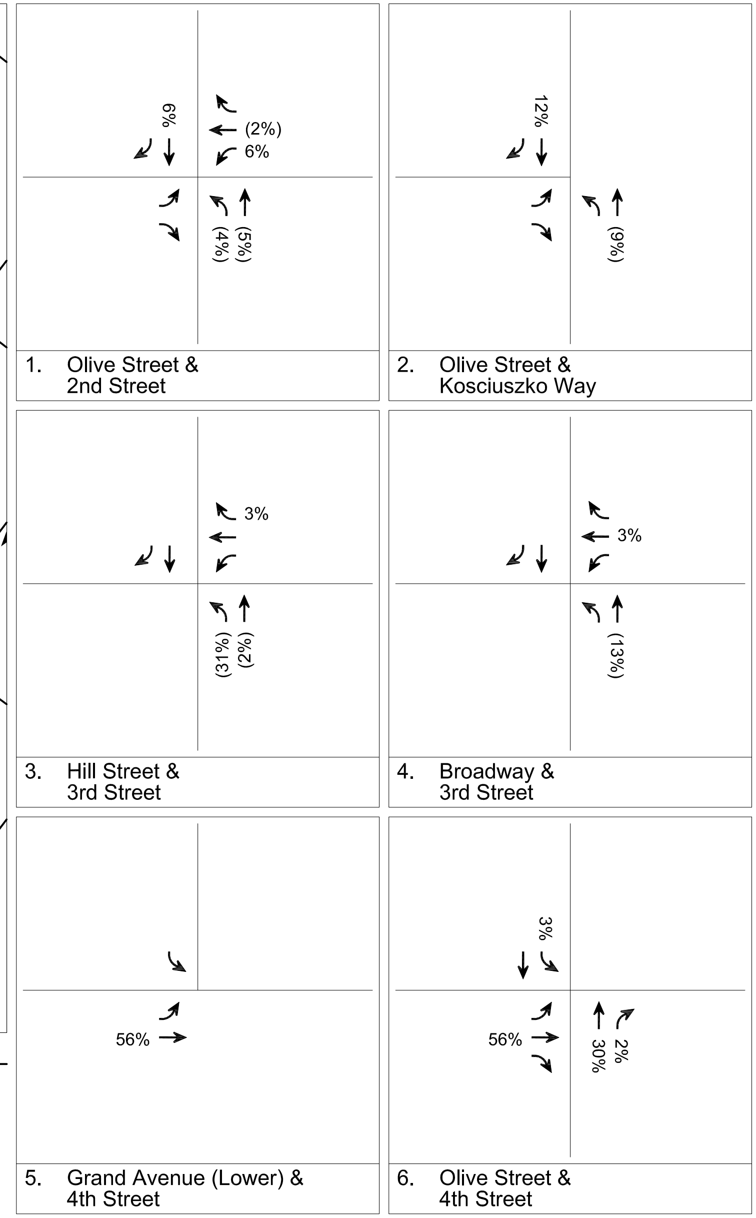


LEGEND

Project Site

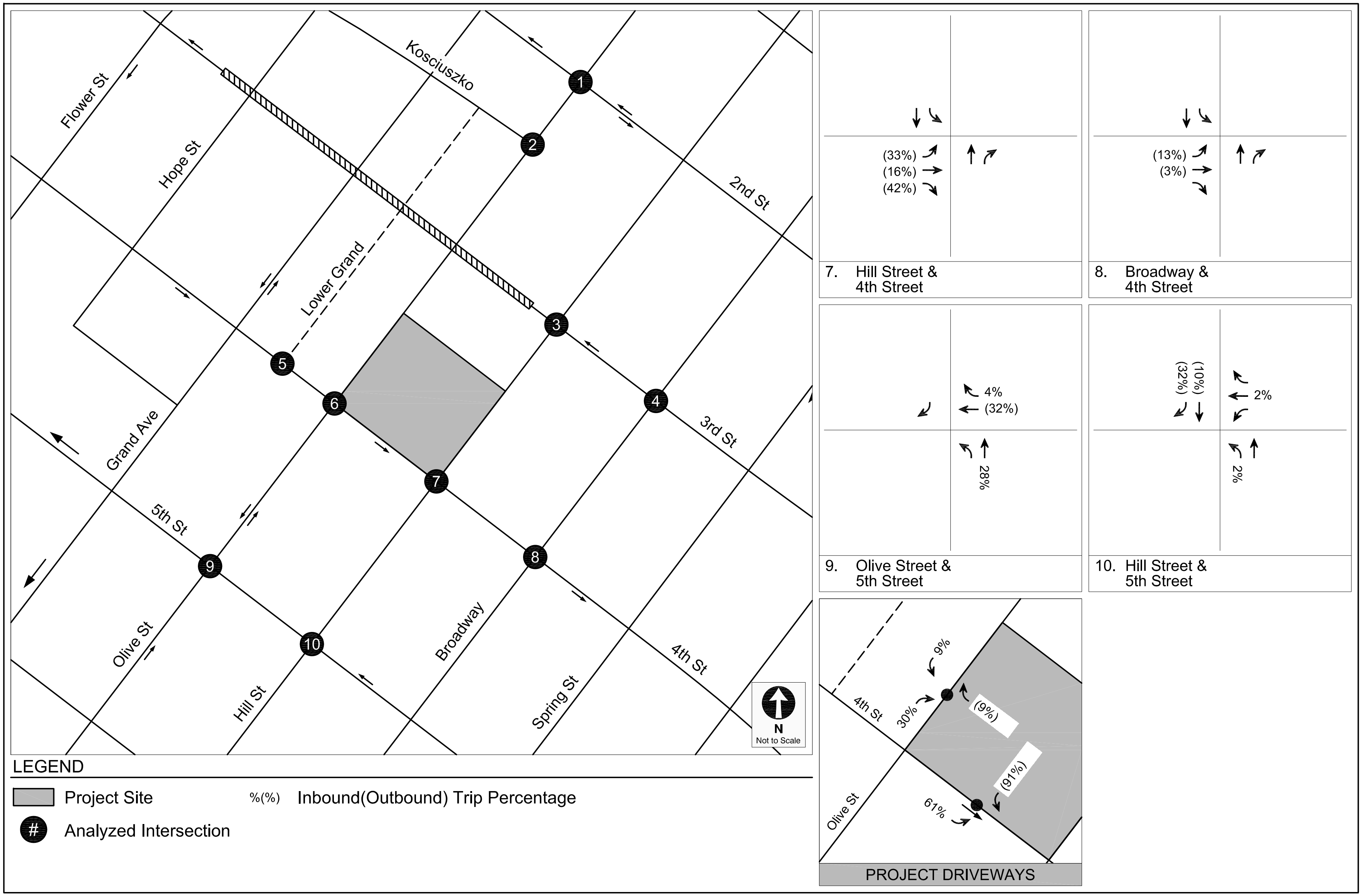
%(%) Inbound(Outbound) Trip Percentage

Analyzed Intersection



TRIP DISTRIBUTION
HOTEL (AM PEAK HOUR)

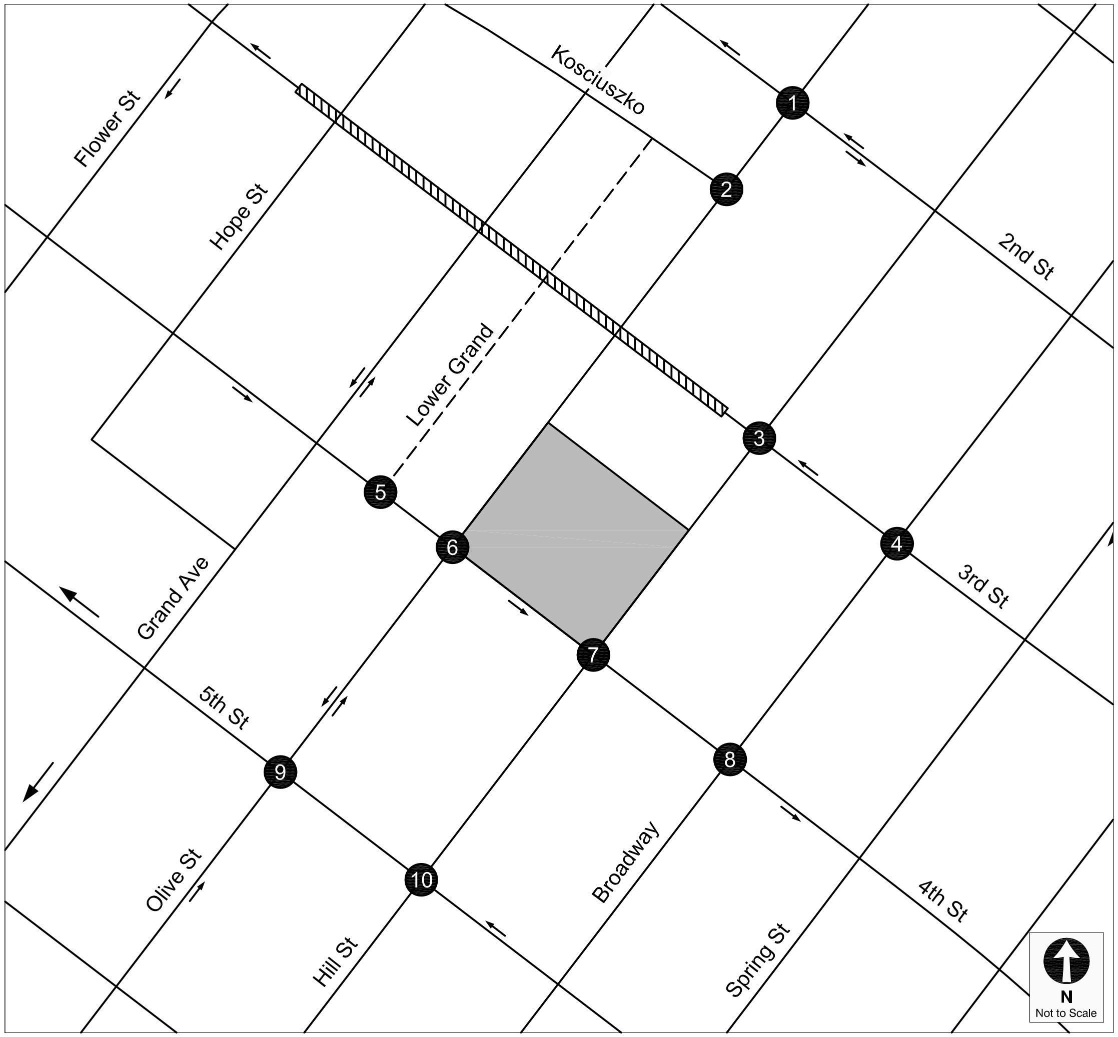
FIGURE
12B

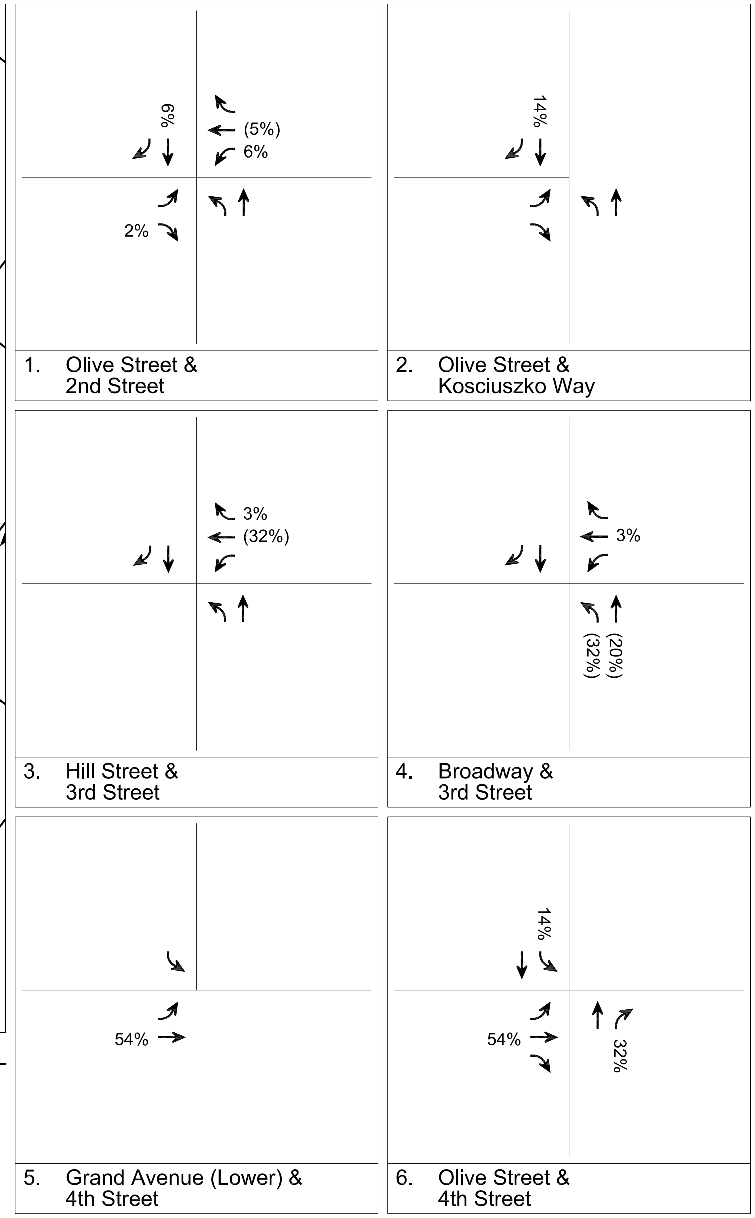


TRIP DISTRIBUTION
HOTEL (AM PEAK HOUR)

FIGURE 12B(CONT.)

Gibson transportation consulting, inc.





LEGEND

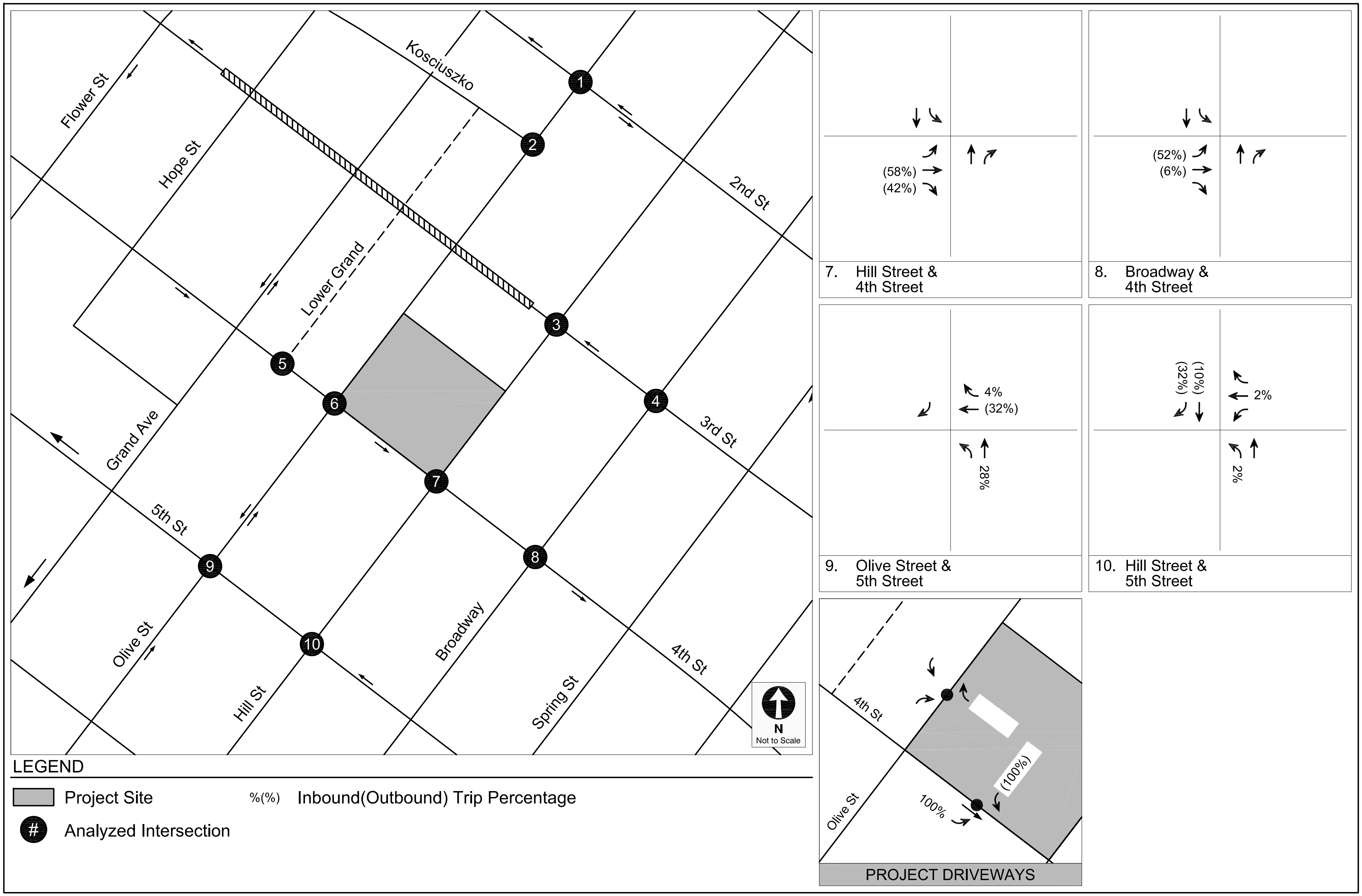
Project Site

%(%) Inbound(Outbound) Trip Percentage

Analyzed Intersection

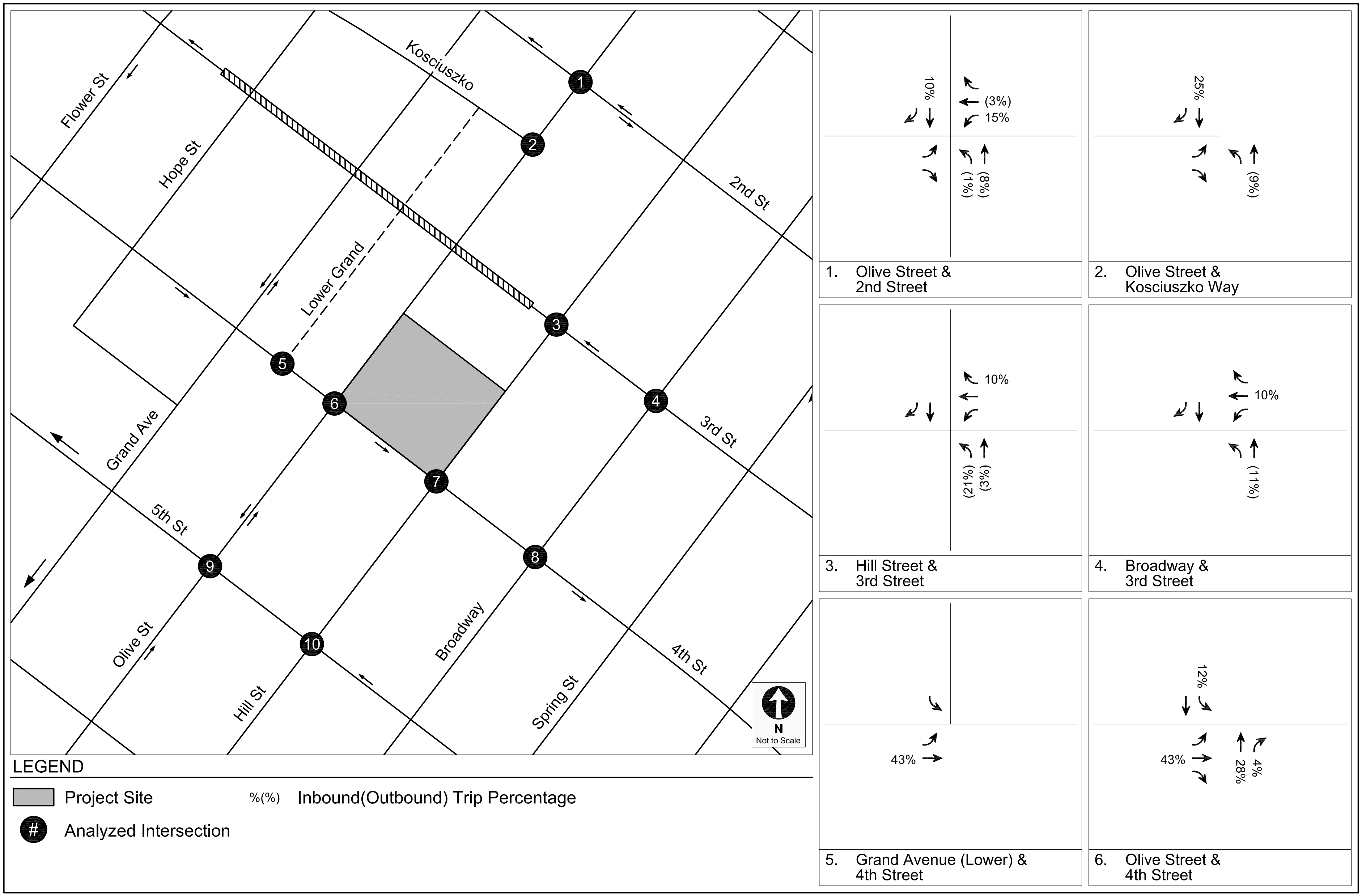
TRIP DISTRIBUTION
HOTEL (PM PEAK HOUR)

FIGURE
12C



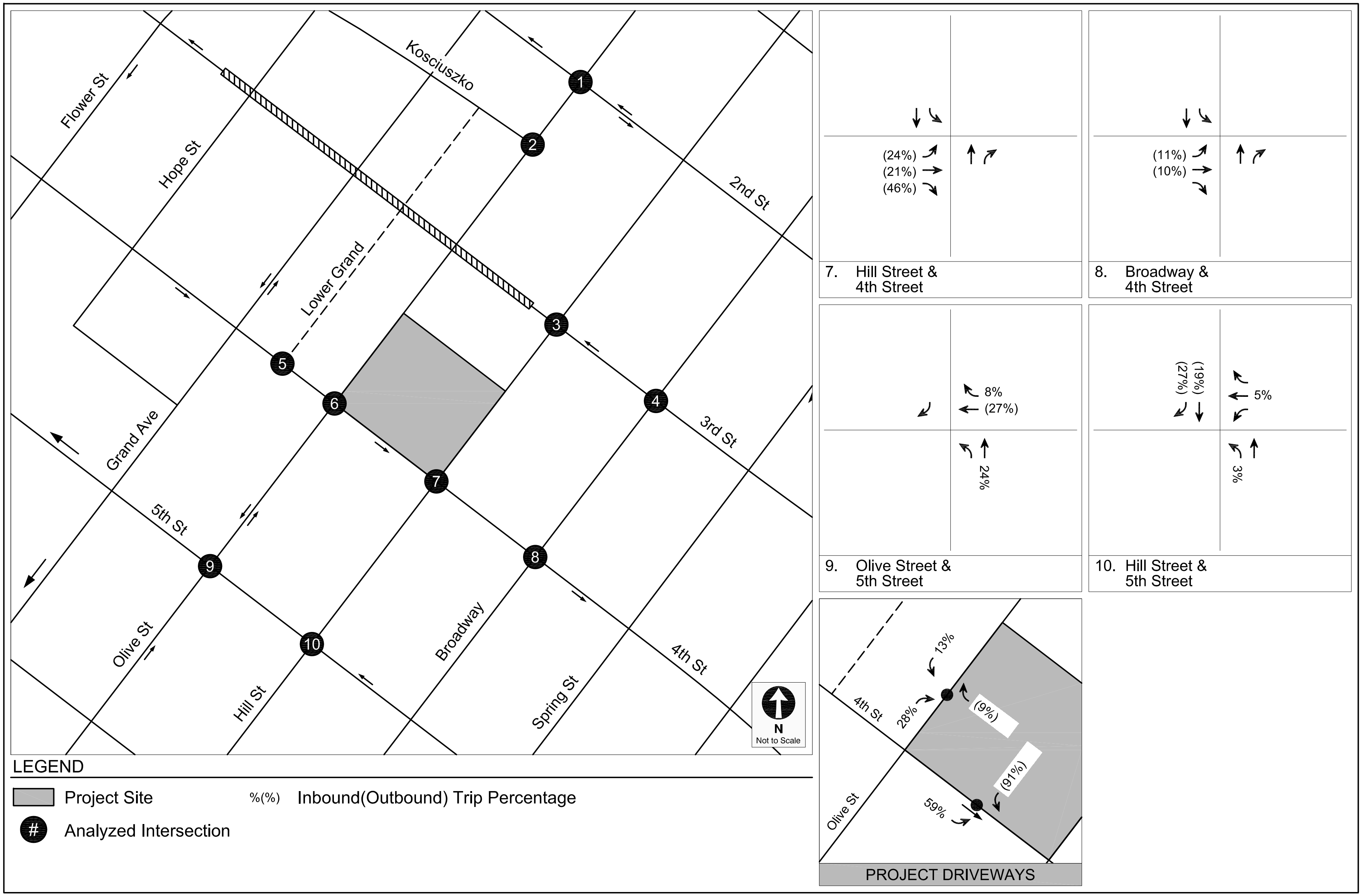
TRIP DISTRIBUTION
HOTEL (PM PEAK HOUR)

FIGURE
12C(CONT.)



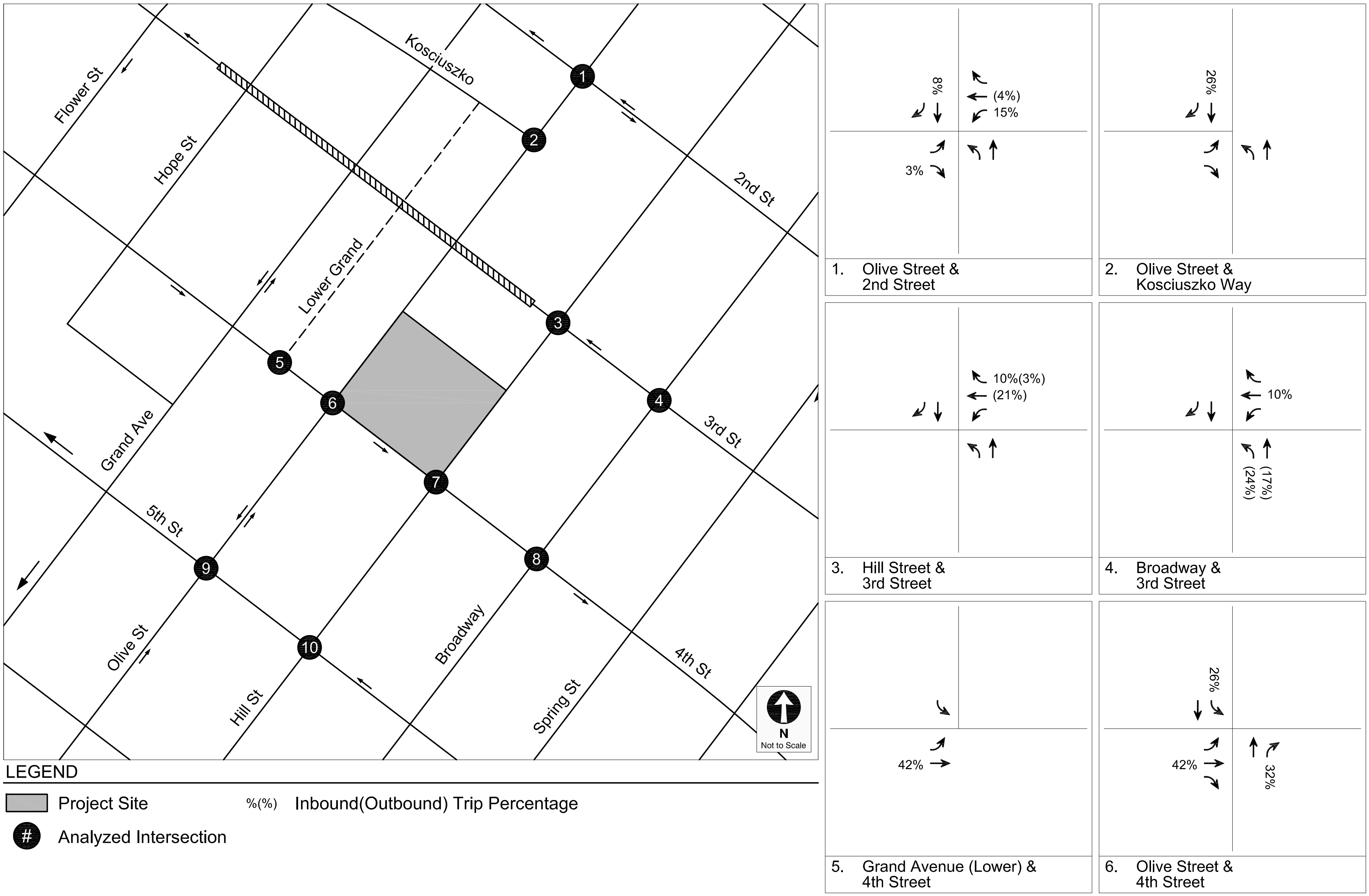
TRIP DISTRIBUTION
COMMERCIAL (AM PEAK HOUR)

FIGURE
12D



TRIP DISTRIBUTION
COMMERCIAL (AM PEAK HOUR)

FIGURE
12D(CONT.)



LEGEND

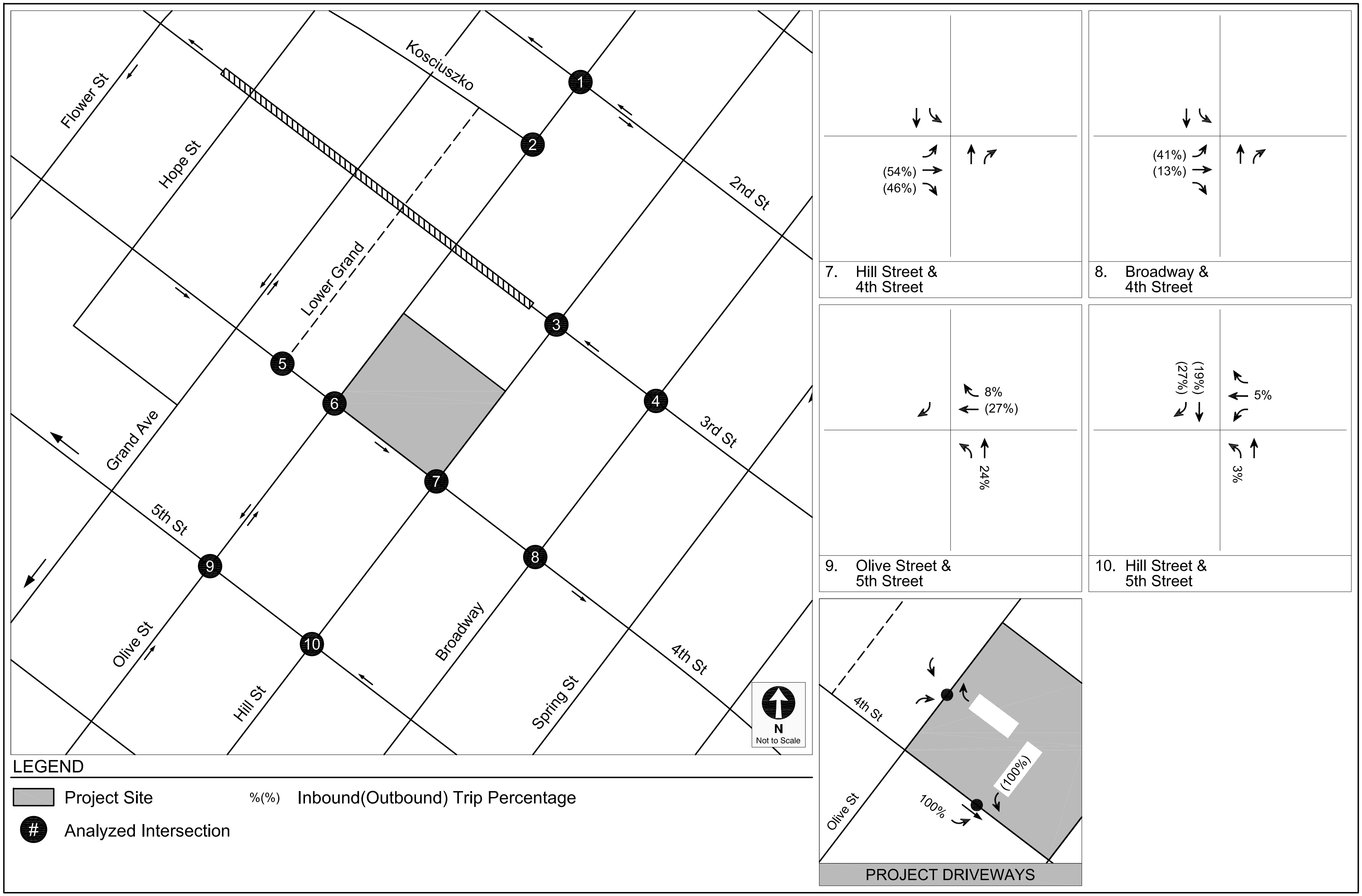
Project Site

%(%) Inbound(Outbound) Trip Percentage

Analyzed Intersection

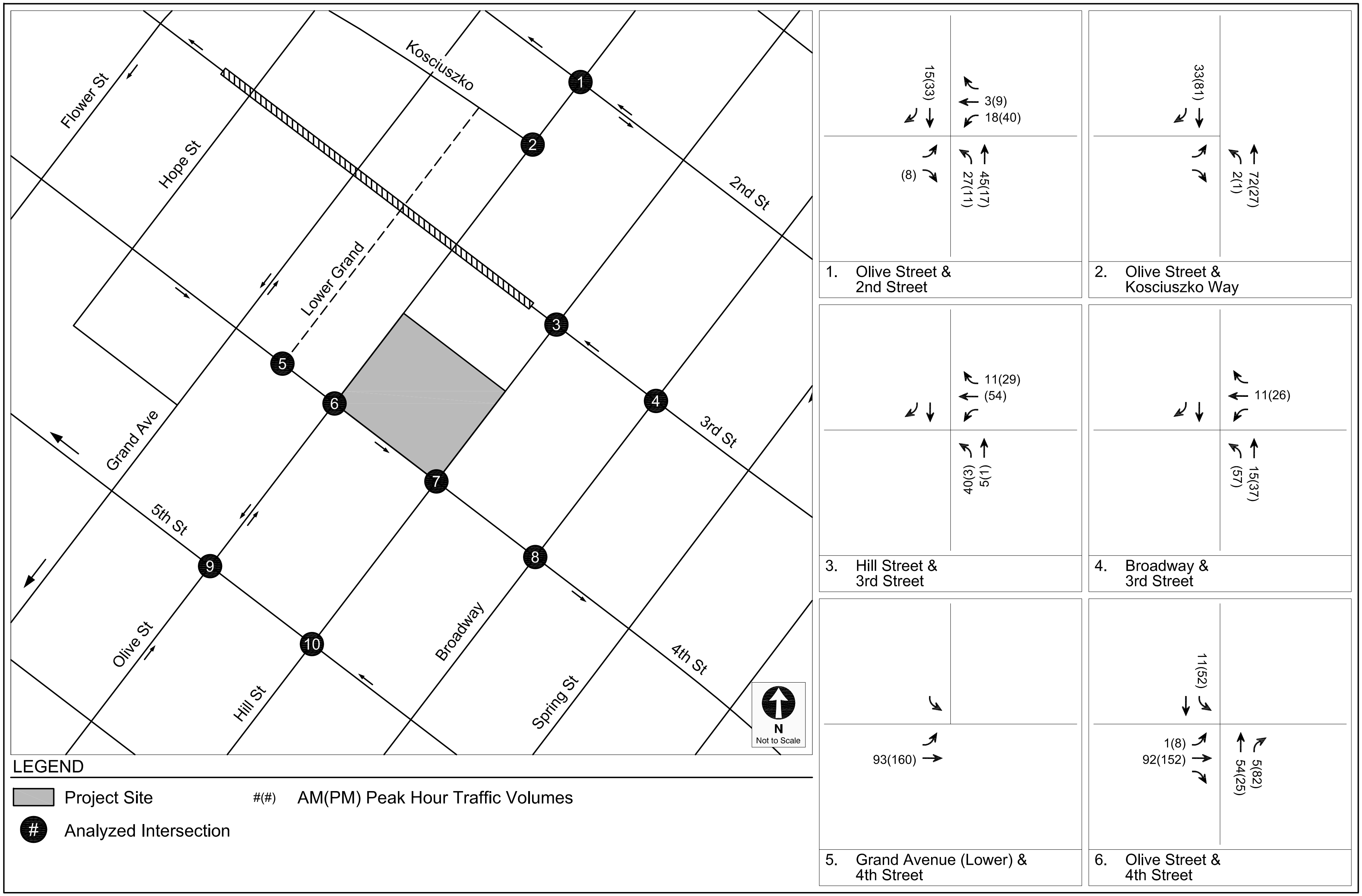
TRIP DISTRIBUTION
COMMERCIAL (PM PEAK HOUR)

FIGURE 12E



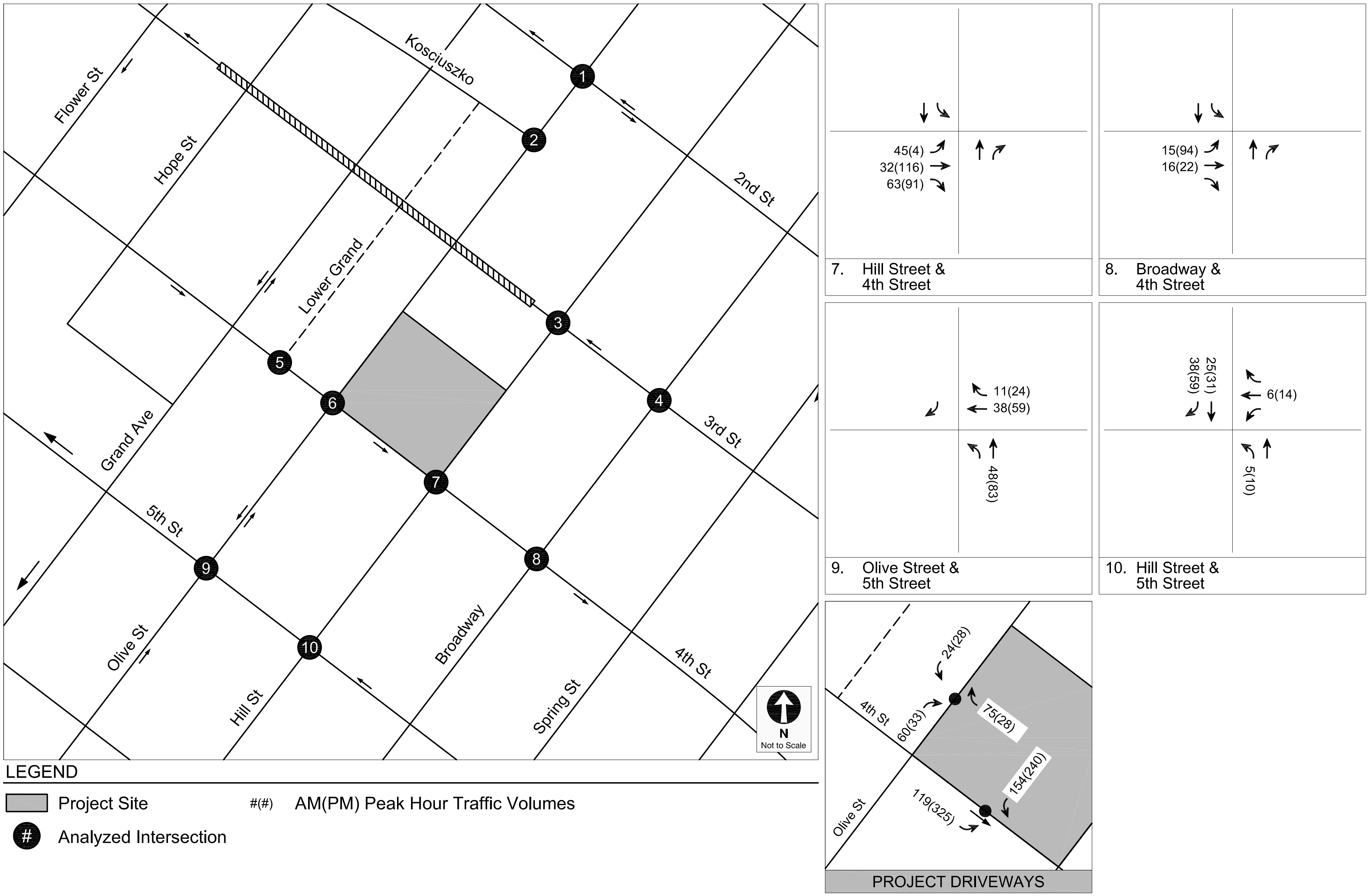
TRIP DISTRIBUTION
COMMERCIAL (PM PEAK HOUR)

FIGURE
12E(CONT.)



TOTAL PROJECT-ONLY
PEAK HOUR TRAFFIC VOLUMES

FIGURE
13



TOTAL PROJECT-ONLY
PEAK HOUR TRAFFIC VOLUMES

FIGURE 13(CONT.)

TABLE 6
INTERSECTION LEVEL OF SERVICE

Level of Service	Description	Delay [a] Signalized Intersections
A	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.	≤ 10
B	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.	> 10 and ≤ 20
C	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.	> 20 and ≤ 35
D	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.	> 35 and ≤ 55
E	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.	> 55 and ≤ 80
F	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.	> 80

Notes:
Source: *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016).
[a] Measured in seconds.

TABLE 7
PROJECT TRIP GENERATION

Land Use	ITE Land Use	Rate	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
TRIP GENERATION RATES [a]								
Multi-Family Housing (High-Rise) [b]	222	per Dwelling Unit	12%	88%	0.23	70%	30%	0.30
Hotel	310	per room	59%	41%	0.47	51%	49%	0.60
Shopping Center	820	per 1,000 sf	62%	38%	0.94	48%	52%	3.81
High-Turnover (Sit-Down) Restaurant	932	per 1,000 sf	55%	45%	9.94	62%	38%	9.77
Quality Restaurant	931	per 1,000 sf	55%	45%	0.73	67%	33%	7.80
TRIP GENERATION ESTIMATES								
Proposed Project [f]								
Multi-Family Housing (High-Rise)	222	432 du	12	87	99	91	39	130
Subtotal - Residential			***12***	***87***	***99***	***91***	***39***	***130***
Hotel	310	515 rooms	143	99	242	158	151	309
Transit/Walk-In Reduction - 25% [c]			*(36)*	*(25)*	*(61)*	*(40)*	*(38)*	*(78)*
Subtotal - Hotel			***107***	***74***	***181***	***118***	***113***	***231***
Shopping Center (Retail)	820	28,836 sf	17	10	27	53	57	110
Internal Capture Reduction - 20% [d]			*(3)*	*(2)*	*(5)*	*(11)*	*(11)*	*(22)*
Transit/Walk-In Reduction - 25% [c]			*(4)*	*(2)*	*(6)*	*(11)*	*(12)*	*(23)*
Pass-by Reduction - 50% [e]			*(5)*	*(3)*	*(8)*	*(16)*	*(17)*	*(33)*
High-Turnover Restaurant	932	21,627 sf	118	97	215	131	80	211
Internal Capture Reduction - 20% [d]			*(24)*	*(19)*	*(43)*	*(26)*	*(16)*	*(42)*
Transit/Walk-In Reduction - 25% [c]			*(24)*	*(20)*	*(44)*	*(26)*	*(16)*	*(42)*
Pass-by Reduction - 20% [e]			*(14)*	*(12)*	*(26)*	*(16)*	*(10)*	*(26)*
Quality Restaurant	931	21,627 sf	9	7	16	113	56	169
Internal Capture Reduction - 20% [d]			*(2)*	*(1)*	*(3)*	*(23)*	*(11)*	*(34)*
Transit/Walk-In Reduction - 25% [c]			*(2)*	*(2)*	*(4)*	*(23)*	*(11)*	*(34)*
Pass-by Reduction - 10% [e]			*(1)*	*0*	*(1)*	*(7)*	*(3)*	*(10)*
Subtotal - Commercial			***65***	***53***	***118***	***138***	***86***	***224***
TOTAL NEW PROJECT TRIPS [g]			**184**	**214**	**398**	**347**	**238**	**585**

Notes:

Dwelling Unit = du.

[a] Source: *Trip Generation Manual, 10th Edition*, Institute of Transportation Engineers, 2017.

[b] Per LADOT's *Transportation Assessment Guidelines,* the morning and afternoon trip rates are based on Multi-Family High-Rise rates for Dense Multi-Use Urban Areas. These rates are not subjected to any transit/walk-in adjustment.

[c] Per LADOT's *Transportation Assessment Guidelines,* the Project Site is located adjacent to a transit station (Metro B/D Line Pershing Square Station), therefore a transit reduction is applied to account for transit usage and walking visitor arrivals from the surrounding neighborhoods and adjacent commercial developments, and for arrivals via taxi and/or carpool services.

[d] Internal capture adjustments account for person trips made between distinct land uses within a mixed-use development (e.g., residents and hotel guests visiting the commercial uses).

[e] Per Attachment H of LADOT's *Transportation Assessment Guidelines*, pass-by adjustments account for Project trips made as an intermediate stop on the way from an origin to a primary trip destination without route diversion.

[f] Land uses proposed as part of the Project include conservative assumptions for retail and restaurant uses, some of which space could be programmed with cultural/civic uses as plans are finalized.

[g] Per LADOT's *VMT Calculator Version 1.2,* November 11, 2019, the Project is anticipated to generate 5,410 daily vehicle trips.

Section 4B
Project Access, Safety, and Circulation Assessment

This section summarizes the site access, safety, and circulation of the Project Site. It includes an evaluation of the expected access and circulation system of the Project.

Project access and circulation constraints relate to the provision of access to and from the Project Site, and may include safety, operational, or capacity constraints. Constraints can be related to vehicular/vehicular, vehicular/bicycle, or vehicular/pedestrian constraints as well as to operational delays. These conflicts may be created by the driveway configuration or through the placement of project driveway(s) in areas of inadequate visibility, adjacent to bicycle or pedestrian facilities, or too close to an intersection or crosswalk. Evaluation of access constraints require details relative to project land use, size, design, location of access points, etc. These constraints are typically evaluated for permanent conditions after project completion but can also be evaluated for temporary conditions during project construction.

For land use projects, the TAG indicates that the impact analysis should include a quantitative evaluation of a project's expected access and circulation operations. Project access is considered constrained if a project's traffic would contribute to unacceptable queuing on an Avenue or Boulevard (as designated in the Mobility Plan) at project driveway(s) or would cause or substantially extend queuing at nearby signalized intersections.

With respect to passenger loading assessments, the TAG recognizes that demand for curbside space has substantially increased due to the continued expansion of driver-for-hire transportation network companies (TNCs) and shared mobility services. Thus, the analysis below characterizes the on-site loading demand of the project frontage and answers these questions: Would the Project result in passenger loading demand that could not be accommodated within any proposed on-site passenger loading facility? Would accommodating the passenger loading demand create pedestrian or bicycle conflicts? Which curbside management options should be explored to better address passenger loading needs in the public right-of-way?

CIRCULATION & SAFETY

The Project's driveway on 4th Street is located approximately 210 feet from the approaching traffic on Olive Street and approximately 130 feet west of Hill Street and would accommodate left-turn ingress and egress maneuvers only. The driveway width is proposed at approximately 30 feet, consistent with City design standards. While a vertical rise in terrain occurs from Hill Street to Olive Street, this driveway intersects at a right angle to 4th Street and does not propose any hardscape features, walls, or landscaping that would obstruct sight distance or visibility of approaching vehicles, pedestrians, or bicycles. This mid-block driveway location does not have an adverse effect on queuing within turn lanes entering the Project and is not expected to significantly increase queuing at Hill Street/4th Street for exiting traffic. 4th Street does not have traditional left-turn pockets at adjacent intersections due to the one-way configuration. While the Project traffic may increase queue lengths, it would not exceed the length of the lanes on 4th Street.

The 4th Street driveway leads directly to the lower porte-cochere for internal drop-off/pick-up activities. The on-site storage capacity for the brief dwell-times of TNC and/or valet activity allows for vehicles to stack within a circular loading area with enough room for vehicles to bypass any stopped vehicles so as to not block internal circulation. Additionally, a separate ramp leads down into the parking facilities to allow vehicles direct access to parking levels.

Based on the trip generation estimates in Table 7, the Project would generate a maximum of 585 vehicle trips during any single peak hour, or an average of approximately 10 trips per minute. The majority of those vehicles would not be chauffeured trips and, therefore, would not result in a passenger loading stop. If as many as 20% of the trips were chauffeured trips, this would result in approximately 117 such trips per hour and fewer than two trips per minute on average. With a typical dwell time of less than 30 seconds for TNC pick-up or drop-off, there would be sufficient capacity to accommodate the needs of the Project on-site. Using these results and based on the size and configuration of the on-site vehicle storage, queuing is not expected to back into the City arterial from the 4th Street driveway.

The Project's vehicular driveway on Olive Street is located approximately 80 feet north of 4th Street and would accommodate both left and right-turn ingress and right-turn egress maneuvers (no left turns out of the driveway due to the proximity to the intersection of Olive Street & 4th Street). The driveway width is proposed at approximately 30 feet, consistent with City design standards. While this driveway is positioned on a vertical rise within Olive Street, the sight lines allow for more than 300 feet of unobstructed view and no features or design elements are proposed that would impede the ability for drivers to see oncoming vehicles, pedestrians, or bicycles. This mid-block driveway location does not have an adverse effect on queuing within turn lanes at adjacent intersections. The intersection of Olive Street & 4th Street would not be significantly affected by traffic utilizing the Olive Street driveway due to the configuration of one-way streets. Left turns into the Project at Olive Street are removed from the southbound left-turn pocket prior to the intersection.

The Olive Street driveway leads directly to the upper porte-cochere for internal drop-off/pick-up activities. This area is far removed from Olive Street and provides adequate on-site storage for TNC/valet activity and allows for vehicles to stack within a circular loading area with enough room for vehicles to bypass stopped vehicles. A separate travel lane leads down into the parking facilities to allow vehicles direct access to parking levels.

Based on the analysis above for TNC demand, the configuration of the loading area, and the distance from Olive Street, no queuing issues are anticipated to spill back into the City arterial from the Olive Street driveway.

The truck loading area along Olive Street will accept large vehicles on-site without requiring additional turn maneuvers within the City arterials. This driveway is separate from all other vehicle driveways and pedestrian/bicycle access points to remove large vehicles from interacting with other modes of travel.

Based on the evaluation of driveways and internal circulation, the vehicular access points would be adequate to serve the demand of the Project Site and would not result in internal stacking that would spill into City arterials. The traffic expected at each Project driveway can be accommodated internally as well as within the existing infrastructure and lane striping at adjacent intersections.

CURBSIDE MANAGEMENT

As stated above, the Project would host all TNC/valet activities on-site through the use of two porte-cocheres available from 4th Street (lower porte-cochere) and Olive Street (upper porte-cochere). As such, curbside management within the public right-of-way is not anticipated as part of this Project.

Section 4C
Pedestrian, Bicycle, and Transit Assessment

This section assesses the Project's potential effect on pedestrian, bicycle, and transit facilities in the vicinity of the Project Site.

The TAG indicates that the pedestrian, bicycle, and transit facilities assessment is intended to determine a project's potential effect on pedestrian, bicycle, and transit facilities in the vicinity of the proposed project. The deficiencies could be physical (through removal, modification, or degradation of facilities) or demand-based (by adding pedestrian or bicycle demand to inadequate facilities).

Factors to consider when assessing a project's potential effect on pedestrian, bicycle, and transit facilities, include the following:

- Would the project directly or indirectly result in a permanent removal or modification that would lead to the degradation of pedestrian, bicycle, or transit facilities?
- Would a project intensify use of existing pedestrian, bicycle, or transit facilities?

EXISTING FACILITIES

All streets within the Study Area have been identified as part of the Pedestrian Enhanced District. Pedestrian sidewalks are provided on all sides fronting the Project Site, including 12-foot wide sidewalks on Olive Street, 10-foot wide sidewalks on 4th Street, and 12-foot to 16.8-foot wide sidewalks on Hill Street. There are existing standard and continental crosswalks at the signalized intersections of Olive Street & 4th Street and Hill Street & 4th Street, as well as signalized midblock crosswalks across Olive Street and Hill Street adjacent to the Project Site. Figure 5 shows a map of pedestrian destinations including commercial and institutional facilities within walking distance of the Project Site that could attract pedestrian activity.

There are no marked bicycle facilities along the Project frontage or within the vicinity of the Project Site, nor are there planned bicycle facilities around the Project perimeter.

PROJECT MODIFICATIONS

The Project would add one full-access driveway and loading access on Olive Street and one driveway on 4th Street that modify the public right-of-way. However, as discussed previously, these driveways do not present significant safety hazards for pedestrians or bicyclists by design or placement. The Project will improve the existing sidewalks along the Project frontages, including the full block of 4th Street from Olive Street to Hill Street, a 420-foot section of Olive Street north of 4th Street, and a 300-foot section on Hill Street north of 4th Street. These improvements include expanding widths from their current condition, fixing uneven/broken surfaces, as well as meeting ADA requirements for slopes and passable spaces, including ADA compliance at affected driveways and intersection curb ramps. The Project will not remove or cause degradation of existing sidewalks, crosswalks, pedestrian refuge areas or curb extensions, nor will it narrow existing sidewalks, paths, crossings, or access points.

The Project would provide bicycle parking to meet City Code for residents, employees, and guests, along with bicycle amenities. The primary secured bicycle parking area is accessed from the Hill Street Plaza level, central to all pedestrian/bicycle paths that traverse the Project Site. The Project would not result in the deterioration of any existing bicycle facilities as no dedicated bicycle facilities are located adjacent to the Project Site; rather, the Project enhances and encourages bicycle use through these active design measures.

The Project design does not remove or degrade existing transit and/or pedestrian amenities and does not result in loss of transit stops or removal of bus pads or other supporting facilities. Rather, the Project will improve on these elements, particularly at the Metro portal by including landscaping features, pedestrian amenities, short-term bicycle parking, overlook areas, benches and moveable seating, and garden terraces all accessible from the Metro portal and surrounding sidewalk passages.

Additionally, the Project will upgrade the Angels Flight stairway with a more welcoming and larger entry with integrated theater-style seating on the Hill Street side, and an expanded, terraced viewpoint on the Olive Street side. The heavily utilized bus stop on Hill Street will also benefit from the Project providing wider sidewalks for more waiting area, flexibility to install passenger amenities, and improved lighting that provides added comfort and safety for passengers. Metro discourages the installation of bus "pull-outs" that remove the bus completely from the travel lane as they create hazards for reentering the road. The Project is not proposing to reconfigure the existing bus stop and infrastructure.

The Project design does not remove existing transportation system elements. The Project instead improves upon existing systems by designing amenities, pedestrian paths, bicycle security, and enhanced transit system entrances.

Design of the Project does not create extended crossing distances for pedestrians; rather, it provides more linkages on-site to facilitate movement through the use of internal paths, ramps, stairs, and escalators to assist mobility for all users. No modifications to intersections or crosswalks that would increase the number of travel lanes, turn radii, or vehicle turning speeds are required as part of the Project. Pedestrian access to the Project would be provided via commercial, residential, and hotel lobby entrances served from the sidewalks along Olive Street, 4th Street, and Hill Street. The Project design also includes pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities. Canopy trees and other landscaping elements are incorporated to provide adequate shade and natural habitat to provide a more comfortable mobility environment for pedestrians. Pedestrian entrances would also provide access from the adjacent streets to parking facilities.

INTENSIFICATION OF USE

The Project proposes constructing approximately 1.3 million sf of development on vacant land adjacent to a heavy-rail transit system. Not only will the Project intensify pedestrian, bicycle, and transit usage in this part of downtown, it is designed to maximize that intensification in an effort to reduce dependence on vehicles and shorten the overall VMT attributable to the Project Site. Intensification, in this regard, is a positive result for the City, Metro, and other transit providers, including bike-share, scooter, and TNC businesses that will also benefit from the increased activity in this previously empty corner.

The Project embraces the intensification of use through design of new pedestrian paseos, natural landscapes, bicycle/pedestrian amenities, along with the multitude of services inherent in a mixed-use development. The Project considers safety through well-designed, limited access points, significant on-site vehicle and bicycle storage, underground parking that is not visible from the street, and improved public sidewalks where current passages are uneven or broken, increased lighting for safety, and enhanced passages to adjacent facilities.

Pedestrian Facilities

Increased numbers of pedestrians around the Project Site will be able to utilize upgraded, compliant sidewalks for ease of travel with access internal to the site from all frontages. Sidewalk widths established by the Mobility Plan are wide to accommodate more demand, particularly in urban environments. With existing crosswalks at all intersections, and with the added features of signalized, marked, mid-block crossings on Hill Street and Olive Street, pedestrians have ample opportunities to safely cross City arterials without the need for illegal crossings.

Bicycle Facilities

While bicycle paths (in the existing or future conditions) are not adjacent to any Project elements, the intensified numbers of bicycle users are accommodated on-site through short- and long-term storage facilities, with easy access to public streets and ultimately to designated bicycle paths.

Transit Facilities

As detailed in Chapter 2, the Study Area is served by numerous established transit routes. The Project is served by multiple bus lines along Olive Street, Hill Street, Broadway, and 5th Street operated by Metro, LADOT DASH, LADOT CE, Foothill Transit, Santa Monica Big Blue Bus, Torrance Transit, and Montebello Bus Lines. The Project sits atop the Metro portal.

Metro and LADOT provide separate bus stops on Hill Street at 4th Street serving Metro Local 2, 4, 10, 48, 81, and 302 and LADOT CE 419. The southbound Metro bus stop is located approximately 60 feet north of 4th Street and provides benches and a covered shelter. The northbound stop is located approximately 110 feet north of 4th Street (across the street from the Project Site).

On the southeast corner of the Project Site, the Metro portal provides escalators and stairwells to access the underground subway system. Another station portal with elevators is provided across the street from the Project Site.

Although the Project (and other Related Projects) will cumulatively add transit ridership, the Project Site and the Study Area are served by a vast amount of transit service, as detailed in Table 2. As shown in Tables 3A and 3B, the total residual capacity of the bus and rail lines within 0.25 miles walking distance of the Project Site during the morning and afternoon peak hours is approximately 21,061 and 18,665 transit trips, respectively. As shown in Table 7, the total Project trips expected to use transit during the morning and afternoon peak hour trips are projected at 115 and 177 vehicle-transit trips, respectively. Based on the average vehicle occupancy factor of 1.55 for all trip purposes in Los Angeles County as identified in *SCAG Regional Travel Demand Model and 2012 Model Validation* (SCAG, March 2016), the total Project vehicle-transit trips correspond to 179 and 275 person-transit trips in the morning and afternoon peak hours, respectively. It should be noted that a percentage of person-transit trips are inherent in the trip generation rates of the residential component. To be conservative, the person-transit trips were further increased by 10%, resulting in approximately 200 morning and 305 afternoon transit trips, accordingly. This equates to less than 2% of the total residual capacity of the transit lines within the Study Area during morning and afternoon peak. This result confirms that the adjacent transit capacity can easily accommodate the intensification of transit usage attributable to the Project without significantly absorbing excess capacity.

The Metro portal is in within 500 feet of the Hill Street bus stop, which makes transfers convenient to passengers. The Project enhances this “transfer-zone” by creating a comfortable environment with safe, seamless, and efficient connectivity within the zone, thereby assisting Metro’s patrons in transferring between travel modes. The Project’s on-site amenities, which include bicycle facilities and pedestrian paseos, assist with Metro’s first-mile/last-mile connectivity.

CONCLUSION

The Project would result in intensification of pedestrian, bicycle, and transit activity in the vicinity of the Project Site. However, given the Project Site’s location atop of a Metro portal in downtown Los Angeles and its proximity to commercial, entertainment, and employment centers, it is ideally located to encourage non-automobile trips to and from those destinations and reach additional public transit routes. The amount of additional pedestrian, bicycle, and transit activity generated by the Project would not strain the capacity of facilities and operations dedicated to those modes.

Section 4D
Operational Evaluation

This section provides a quantitative evaluation of the Project's access and circulation operations, including the anticipated LOS at the study intersections and anticipated traffic queues. As noted in the TAG, a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA.

LOS ANALYSIS

The intersection analysis was conducted at each of the study intersections based on the HCM methodologies to identify delay and LOS according to the LOS definitions provided in Table 6. Detailed LOS calculation worksheets are provided in Appendix F.

Existing with Project Conditions

Traffic Volumes. The Project-only morning and afternoon peak hour traffic volumes described in Section 4A and shown in Figure 13 were added to the existing morning and afternoon peak hour traffic volumes shown in Figure 7. The resulting volumes are illustrated in Figure 14 and represent Existing with Project Conditions, assuming Project operation under Existing Conditions.

Intersection LOS. Table 8 summarizes the weekday morning and afternoon peak hour LOS results for each of the study intersections under Existing and Existing with Project Conditions. As shown in Table 8, all 10 study intersections operate at LOS C or better during both the morning and afternoon peak hours under both Existing Conditions and Existing with Project Conditions.

Future with Project Conditions

All future adjustments, including cumulative traffic growth (i.e., ambient growth and Related Project traffic) and transportation infrastructure improvements described in Chapter 2, are incorporated into this analysis.

Traffic Volumes. The Project-only morning and afternoon peak hour traffic volumes described in Section 4A and shown in Figure 13 were added to the Future without Project (Year 2028) morning and afternoon peak hour traffic volumes shown in Figure 10. The resulting volumes are illustrated in Figure 15 and represent Future with Project Conditions after development of the Project in Year 2028.

Intersection LOS. Table 9 summarizes the results of the Future without Project (Year 2028) and Future with Project Conditions during the weekday morning and afternoon peak hours for the 10 study intersections. As shown in Table 9, six of the 10 study intersections are anticipated to operate at LOS D or better during both the morning and afternoon peak hours under both Future without Project and Future with Project Conditions. The following four remaining intersections are anticipated to operate at LOS E or F during at least one of the analyzed peak hours:

- Intersection 3. Hill Street & 3rd Street (morning peak hour)
- Intersection 4. Broadway & 3rd Street (morning and afternoon peak hours)
- Intersection 8. Broadway & 4th Street (afternoon peak hour)
- Intersection 9. Olive Street & 5th Street (afternoon peak hour)

The addition of Project traffic is anticipated to change the LOS operations at the following intersections:

- Intersection 2. Olive Street & Kosciuszko Way – LOS B to LOS C during afternoon peak hour
- Intersection 3. Hill Street & 3rd Street – LOS D to LOS E during morning peak hour
- Intersection 4. Broadway & 3rd Street – LOS E to LOS F during afternoon peak hour
- Intersection 6. Olive Street & 4th Street – LOS C to LOS D during afternoon peak hour
- Intersection 7. Hill Street & 4th Street – LOS C to LOS D during afternoon peak hour
- Intersection 9. Olive Street & 5th Street – LOS E to LOS F during afternoon peak hour

INTERSECTION QUEUING ANALYSIS

The study intersections were analyzed to determine whether the Project would cause vehicle queues to extend beyond the available storage lengths.

The queue lengths were estimated using Synchro software, which reports the 85th percentile queue length in vehicle-length that can be multiplied by 25 feet to represent the average length of a vehicle. The reported queues are calculated using the HCM signalized intersection methodology.

As previously discussed, the Project's internal circulation design and access provisions would not cause vehicle queues to extend beyond the driveways into the adjacent street system.

Olive Street Driveway

The vehicular access on Olive Street would accommodate all turning movements with the exception of left turns exiting due to the proximity to the adjacent intersection. Project traffic traveling south on Olive Street will utilize the existing two-way left-turn lane to make a left turn into the driveway. The queuing analysis estimates a queue of approximately eight feet in the morning peak hour (less than one vehicle length), and 28 feet (less than two vehicle lengths) in the evening peak hour. Queued vehicles in this left-turn lane may influence traffic exiting the driveway on the west side of Olive Street (2-Cal Building) that desire to travel north and may require that these vehicles share the two-way left-turn lane. To reduce conflicts within the two-way left-turn lane, it is recommended that "KEEP CLEAR" pavement markings provide a buffer to give all vehicles equal rights to the refuge area from either side of the street. The precise location of the clear zone would be resolved during design and permitting, but at minimum, should include the 2-Cal Building driveway.

4th Street Driveway

This driveway is restricted to left turn in/out only. Entering left-turn traffic will utilize the curb lane and not create conflicts for other traffic movements. Based on the estimated traffic volumes and configuration of this driveway, left-turn queuing would not extend as far as Olive Street and would not significantly affect through traffic movements on 4^{th} Street.

Detailed queuing analysis worksheets are provided in Appendix F.

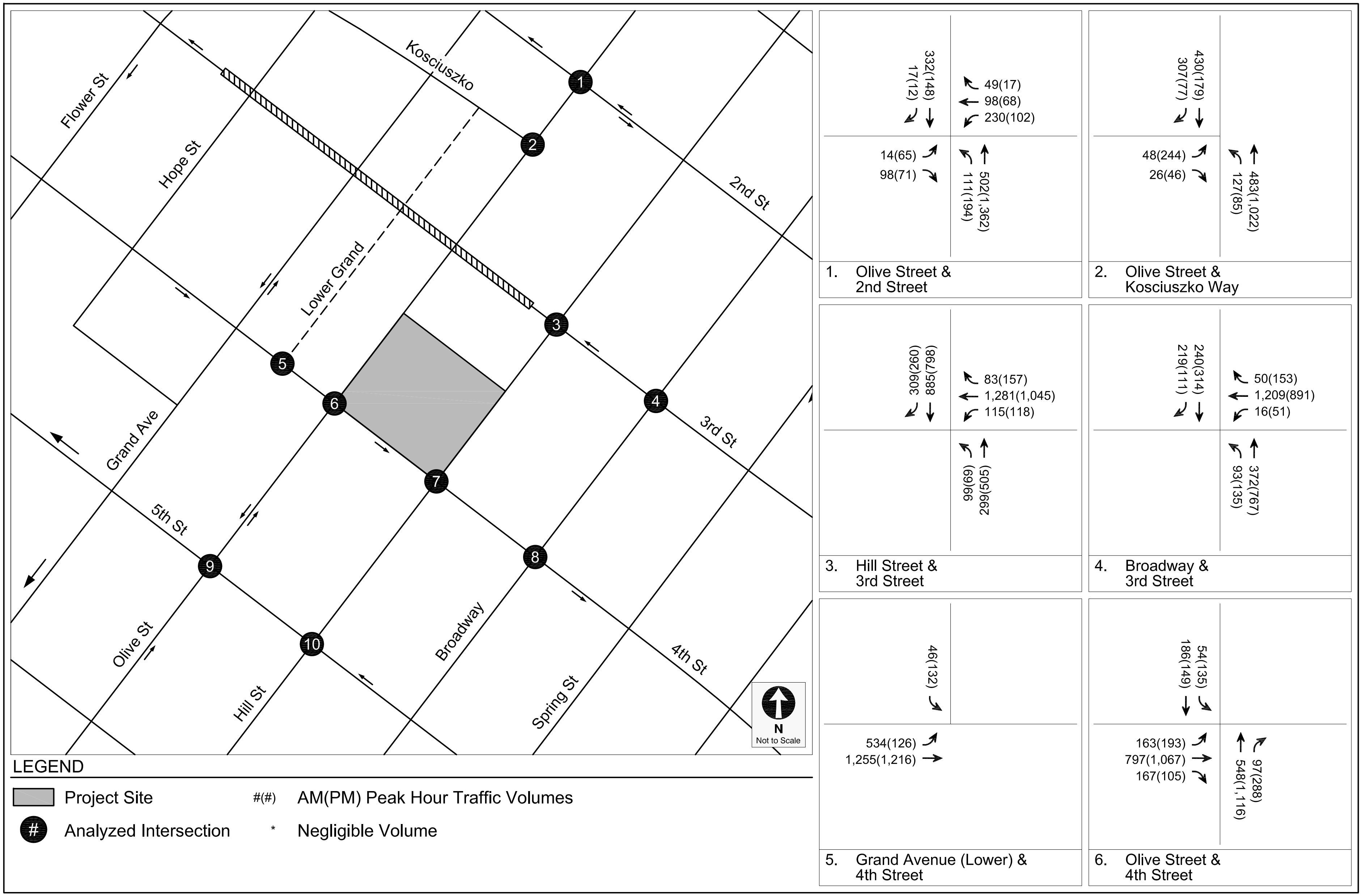
Olive Street Loading Driveway

Heavy truck activity is restricted to this driveway, which will accommodate loading activities. It is recommended that heavy vehicle activity be scheduled outside of the peak hours and that a loading area management plan be implemented so that trucks are not subject to long dwell times on City streets for access to the loading area. This plan should include a preferred truck route to all vendors when scheduling deliveries so that arrival patterns can be adequately controlled.

PASSENGER LOADING EVALUATION

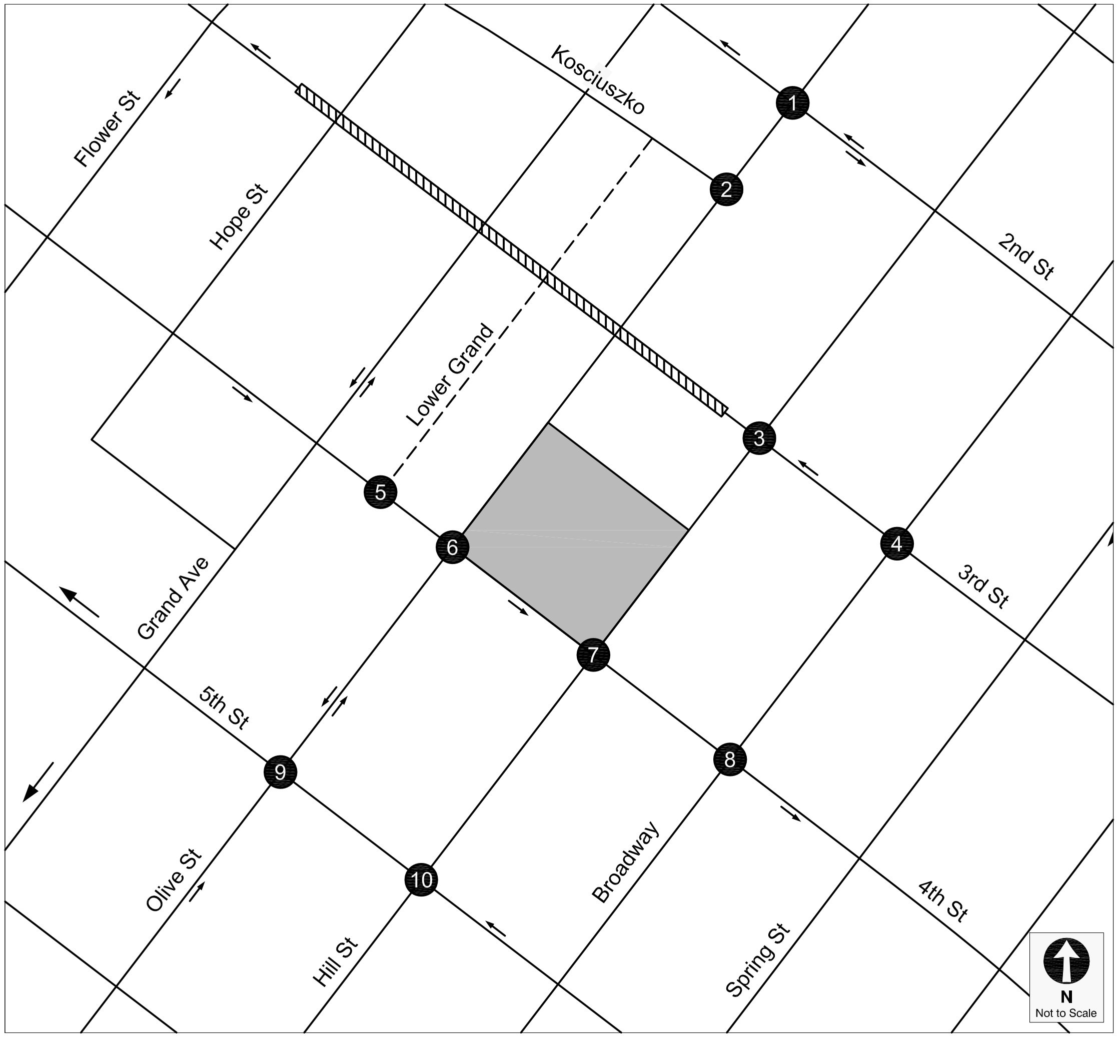
The Project proposes all passenger loading to be on-site within the separate porte-cocheres for residential and hotel passenger loading. Additionally, metered on-street parking is allowed on all sides of the Project Site (with afternoon peak period restrictions on Olive Street), providing approximately 25 more spaces that can serve passenger loading purposes when not in use by parked vehicles.

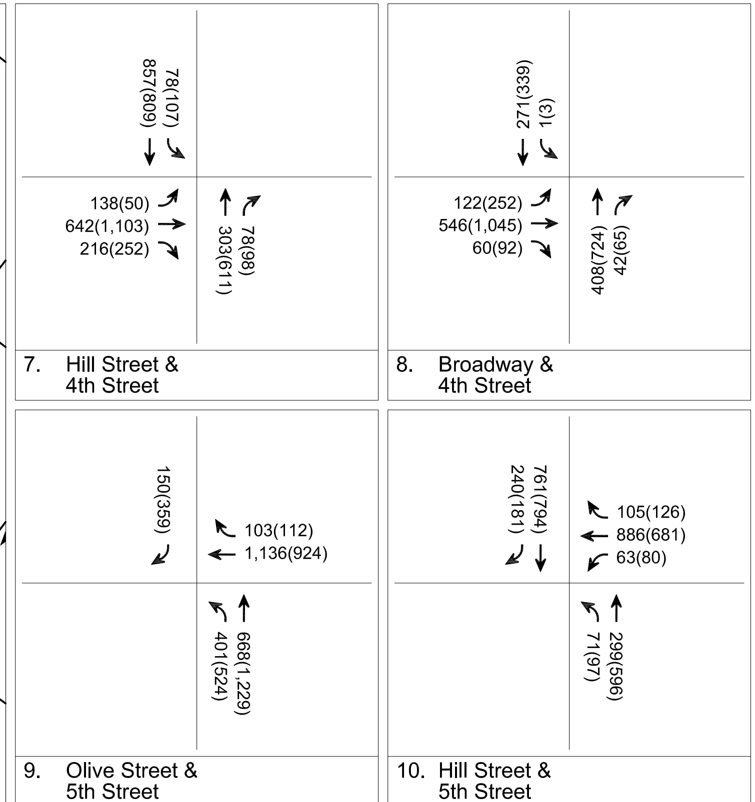
As described previously, the Project would generate a maximum of 585 vehicle trips during any single peak hour, or an average of approximately 10 trips per minute. The majority of those vehicles would not be chauffeured trips and, therefore, would not result in a passenger loading stop. If as many as 20% of the trips were chauffeured trips, this would result in approximately 117 such trips per hour and fewer than two trips per minute on average. With a typical dwell time of less than 30 seconds for TNC pick-up or drop-off, there would be sufficient capacity within the two designated passenger loading areas to accommodate the needs of the Project.



EXISTING WITH PROJECT CONDITIONS (YEAR 2019)
PEAK HOUR TRAFFIC VOLUMES

FIGURE 14



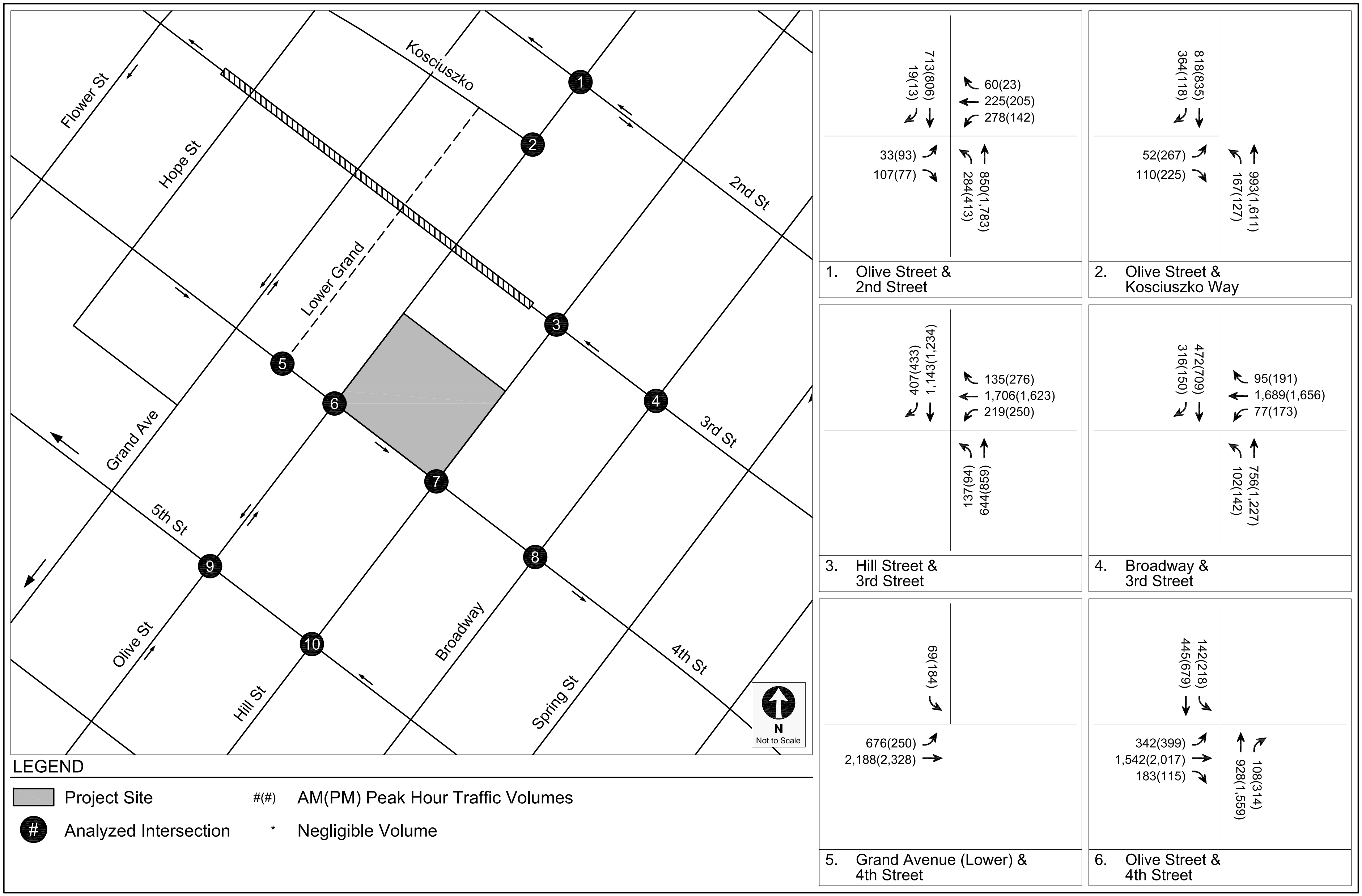


LEGEND

Project Site	#(#) AM(PM) Peak Hour Traffic Volumes
# Analyzed Intersection	* Negligible Volume

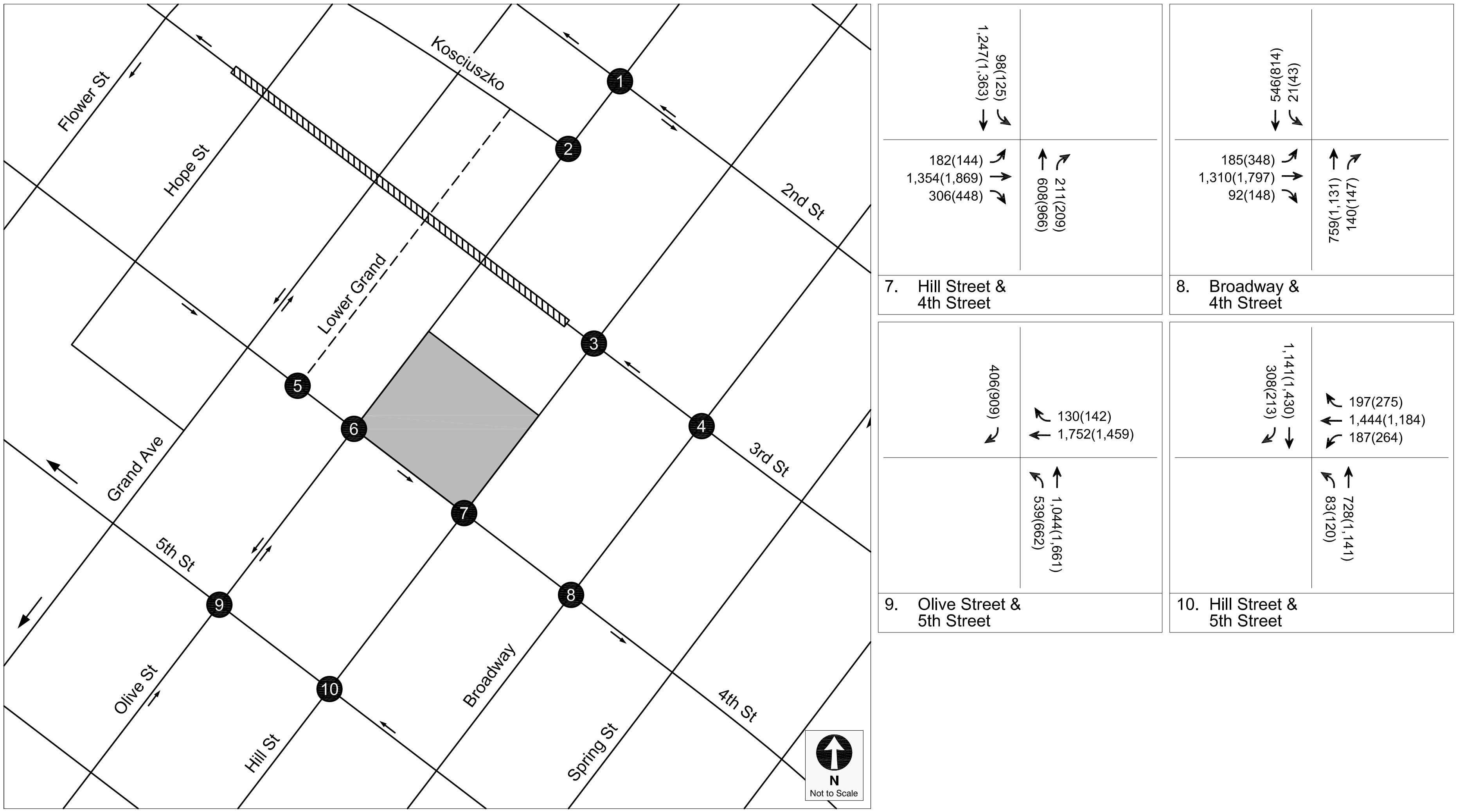
EXISTING WITH PROJECT CONDITIONS (YEAR 2019)
PEAK HOUR TRAFFIC VOLUMES

FIGURE 14(CONT.)



FUTURE WITH PROJECT CONDITIONS (YEAR 2028)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
15



LEGEND

Project Site

\# Analyzed Intersection

#(#) AM(PM) Peak Hour Traffic Volumes

* Negligible Volume

FUTURE WITH PROJECT CONDITIONS (YEAR 2028)
PEAK HOUR TRAFFIC VOLUMES

FIGURE 15(CONT.)

TABLE 8
EXISTING WITH PROJECT CONDITIONS (YEAR 2019)
INTERSECTION LEVELS OF SERVICE ANALYSIS

No	Intersection	Peak Hour	Existing		Existing with Project	
			Delay	LOS	Delay	LOS
1.	Olive Street & 2nd Street	AM PM	15.7 3.8	B A	16.2 4.6	B A
2.	Olive Street & Kosciuszko Way	AM PM	3.8 10.9	A B	3.7 10.3	A B
3.	Hill Street & 3rd Street	AM PM	26.9 22.6	C C	27.2 23.0	C C
4.	Broadway & 3rd Street	AM PM	22.5 19.1	C B	21.8 20.0	C B
5.	Grand Avenue & 4th Street	AM PM	5.0 7.7	A A	4.7 7.1	A A
6.	Olive Street & 4th Street	AM PM	16.1 25.5	B C	16.6 27.3	B C
7.	Hill Street & 4th Street	AM PM	14.1 18.5	B B	14.3 19.1	B B
8.	Broadway & 4th Street	AM PM	19.0 26.9	B C	19.3 27.6	B C
9.	Olive Street & 5th Street	AM PM	21.3 26.6	C C	21.1 26.8	C C
10.	Hill Street & 5th Street	AM PM	19.1 18.6	B B	19.0 18.1	B B

Notes:
Delay is measured in seconds per vehicle
LOS = Level of service
Results per Synchro 10 (HCM methodology)

TABLE 9
FUTURE WITH PROJECT CONDITIONS (YEAR 2028)
INTERSECTION LEVELS OF SERVICE ANALYSIS

No	Intersection	Peak Hour	Future without Project		Future with Project	
			Delay	LOS	Delay	LOS
1.	Olive Street & 2nd Street	AM PM	15.1 7.2	B A	16.0 9.2	B A
2.	Olive Street & Kosciuszko Way	AM PM	4.5 11.1	A B	4.6 11.5	A B
3.	Hill Street & 3rd Street	AM PM	51.3 40.9	D D	76.9 43.9	E D
4.	Broadway & 3rd Street	AM PM	60.7 76.4	E E	62.2 114.7	E F
5.	Grand Avenue & 4th Street	AM PM	4.3 6.1	A A	4.4 5.9	A A
6.	Olive Street & 4th Street	AM PM	20.4 34.0	C C	21.0 39.7	C D
7.	Hill Street & 4th Street	AM PM	24.1 33.6	C C	27.3 43.9	C D
8.	Broadway & 4th Street	AM PM	24.7 67.8	C E	24.3 73.8	C E
9.	Olive Street & 5th Street	AM PM	30.2 79.1	C E	30.2 92.2	C F
10.	Hill Street & 5th Street	AM PM	23.3 23.3	C C	23.7 23.9	C C

Notes:
Delay is measured in seconds per vehicle
LOS = Level of service
Results per Synchro 10 (HCM methodology)

Section 4E
Residential Street Cut-Through Analysis

This section summarizes the residential street cut-through analysis conducted to determine potential increases in average daily traffic volumes on designated Local Streets, as classified in the Mobility Plan, that can be identified as cut-through trips generated by the Project and that can adversely affect the character and function of those streets.

Section 3.5.2 of the TAG provides a list of questions to assess whether the Project would negatively affect residential streets. Due to the Project's location in downtown Los Angeles, residential Local Streets are not affected by Project traffic and a residential street cut-through analysis is not required.

Section 4F
Construction Impact Analysis

This section summarizes the construction schedule and construction impact analysis for the Project. The construction impact analysis relates to the temporary impacts that may result from the construction activities associated with the Project and was performed in accordance with Section 3.4 of the TAG.

CONSTRUCTION EVALUATION CRITERIA

Section 3.4.3 of the TAG identifies three types of in-street construction impacts that require further analysis to assess the effects of Project construction on the existing pedestrian, bicycle, transit, or vehicle circulation. The three types of impacts and related populations are:

1. Temporary transportation constraints – potential impacts on the transportation system
2. Temporary loss of access – potential impacts on visitors entering and leaving sites
3. Temporary loss of bus stops or rerouting of bus lines – potential impacts on bus travelers

The factors used to determine the significance of a project's impacts involve the likelihood and extent to which an impact might occur, the potential inconvenience caused to users of the transportation system, and consideration for public safety. Construction activities could potentially interfere with pedestrian, bicycle, transit, or vehicle circulation and accessibility to adjoining areas. As detailed in Section 3.4.4 of the TAG, the proposed construction plans should be reviewed to determine whether construction activities would require any of the following actions:

- Street, sidewalk, or lane closures
- Block existing vehicle, bicycle, or pedestrian access along a street or to parcels fronting the street
- Modification of access to transit stations, stops, or facilities during revenue hours

- Closure or movement of an existing bus stop or rerouting of an existing bus line
- Creation of transportation hazards

PROPOSED CONSTRUCTION SCHEDULE

The Project is anticipated to be constructed over a period of approximately 45 months, with an anticipated start date in Year 2022 and completion date in Year 2026. Although construction of the Project is anticipated to be complete by Year 2026, the Project is not anticipated to be fully occupied until Year 2028. The construction period would include sub-phases of site demolition, excavation and grading, foundations, and building construction. Peak haul truck activity occurs during excavation and grading, and peak worker activity occurs during building construction. These two sub-phases of construction were studied in greater detail.

EXCAVATION AND GRADING PHASE

The peak period of truck activity during construction of the Project would occur during excavation and grading of the Project Site.

Haul trucks would travel on approved truck routes designated within the City to the Irwindale Landfill. Haul truck traffic would take the most direct route from Hill Street to the appropriate freeway ramps to access US 101. The haul route will be reviewed and approved by the City.

Based on projections compiled for the Project, approximately 334,000 cubic yards of material would be excavated and removed from the Project Site over a 174-workday period. Based on construction projections, this period would require up to 210 haul trucks per day. Thus, up to 420 daily haul truck trips (210 inbound, 210 outbound) are forecast to occur during the excavation and grading period, with approximately 72 trips per hour (36 inbound, 36 outbound) uniformly over a typical six-hour haul period (i.e., not operating during commuter peak hours).

Transportation Research Circular No. 212, Interim Materials on Highway Capacity (Transportation Research Board, 1980) defines passenger car equivalency (PCE) for a heavy vehicle as the number of through moving passenger cars to which it is equivalent based on the heavy vehicle's headway and delay-creating effects. Table 8 of *Transportation Research Circular No. 212* and Exhibit 12-25 of the HCM suggest a PCE of 2.0 for trucks. Assuming a PCE factor of 2.0, the 420 truck trips would be equivalent to 840 daily PCE trips. The 72 hourly truck trips would be equivalent to 144 PCE trips (72 inbound, 72 outbound) per hour.

In addition, a maximum of 20 construction workers would work at the Project Site during this phase. Assuming minimal carpooling amongst those workers, an average vehicle occupancy (AVO) of 1.135 persons per vehicle was applied, as provided in *CEQA Air Quality Handbook* (South Coast Air Quality Management District, 1993). Therefore, 20 workers would result in 23 vehicles inbound and 23 vehicles outbound on a daily basis during this phase.

With implementation of the Construction Management Plan, it is anticipated that almost all haul truck activity to and from the Project Site would occur outside of the morning and afternoon peak hours. In addition, as discussed in more detail in the following section, worker trips to and from the Project Site would also occur outside of the peak hours. Therefore, no peak hour construction traffic impacts are expected during the excavation and grading phase of construction.

BUILDING CONSTRUCTION PHASE

The traffic impacts associated with construction workers depends on the number of construction workers employed during various phases of construction, as well as the travel mode and travel time of the workers. In general, the hours of construction typically require workers to be on-site before the weekday morning commuter peak period and allow them to leave before or after the afternoon commuter peak period (i.e., arrive at the site prior to 7:00 AM and depart before 4:00 PM or after 6:00 PM). Therefore, most, if not all, construction worker trips would occur outside of the typical weekday commuter peak periods.

According to construction projections prepared for the Project, the building subphase of construction would employ the most construction workers, with a maximum of approximately 374 workers per day for all components of the building (i.e., framing, plumbing, elevators, inspections, finishing). However, since the different building components would not be constructed or installed simultaneously, this cumulative estimate likely overstates the number of workers that would be expected on the peak construction day. Furthermore, on most of the estimated workdays to complete the Project, there would be far fewer workers than on the peak day. Therefore, the estimate of 374 workers per day used for the purposes of this analysis represents a conservative estimate.

Assuming an AVO of 1.135 persons per vehicle, 374 workers would result in a total of 425 vehicles that would arrive and depart from the Project Site each day. The estimated number of daily trips associated with the construction workers is approximately 850 (425 inbound and 425 outbound trips), but nearly all of those trips would occur outside of the peak hours, as described above. As such, the building phase of Project construction would not cause a significant traffic impact at any of the study intersections.

During the shoring process of the construction period, parking for construction workers would be secured on-site. Upon commencement of the mass excavation, construction workers will park at a remote site and either shuttle or walk/transit to the site. Restrictions against workers parking in the public right-of-way in the vicinity of (or adjacent to) the Project Site would be identified as part of the Construction Management Plan. All construction materials storage and truck staging would be contained on-site.

This stage also includes deliveries throughout the day, estimated at 92 per day (or 184 total trips per day). Delivery vehicles would primarily be removed from the commuter peak hours and would not have a significant influence on peak intersection operation.

POTENTIAL IMPACTS ON ACCESS, TRANSIT, AND PARKING

Project construction is not expected to create hazards for roadway travelers, bus riders, or parkers, so long as commonly practiced safety procedures for construction are followed. Such procedures and other measures (e.g., to address temporary traffic control, lane closures, sidewalk closures, etc.) would be incorporated into the Construction Management Plan. The construction-related impacts associated with access to other businesses and transit are anticipated to be less than significant, and the implementation of the Construction Management Plan described below would further reduce those impacts.

Access

Construction activities would be primarily contained within the Project Site boundaries. All construction equipment will be staged entirely on-site. However, it is expected that construction fences may encroach into the public right-of-way (e.g., sidewalks) adjacent to the Project Site. Temporary traffic controls would be provided to direct traffic and/or pedestrians safely around any closures, as required in the Construction Management Plan. Travel lanes would be maintained on Hill Street throughout the construction period and emergency access would not be impeded. The curb lane on Olive Street and 4th Street adjacent to the Project Site would be temporarily closed during construction.

The traffic impacts associated with the lane closures along Olive Street and 4th Street, adjacent to the Project Site, would affect the intersection northbound approach lanes at Olive Street & 4th Street and eastbound approach lanes at Hill Street & 4th Street. The two adjacent intersections were, therefore, were analyzed under Existing with Construction Conditions. Based on the results of the LOS analysis, the intersection operations at both intersections would perform at LOS B during the morning peak hour and LOS B or C during the afternoon peak hour. The LOS worksheets are provided in Appendix F.

The use of the public rights-of-way along Olive Street, 4th Street, and Hill Street adjacent to the Project Site would require temporary re-routing of pedestrian and bicycle traffic, as the sidewalks fronting the Project Site would be closed. The Construction Management Plan would include measures to ensure pedestrian and bicycle safety along the affected sidewalks, bicycle facilities, and temporary walkways (e.g., use of directional signage, maintaining continuous and unobstructed pedestrian paths, and/or providing overhead covering).

Transit

While the existing Metro portal and adjacent historic Angels Flight will not be physically disturbed by the Project, the design integrates features to enhance these adjacent facilities. Any temporary closures to the Metro portal or Angels Flight funicular to install these amenities will be closely coordinated in advance with the affected ownership to limit such exposure and to prepare adequate controls, wayfinding, and alternate travel paths to reduce the inconvenience to patrons.

Metro has easement rights that include both surface (non-exclusive easement for pedestrian circulation) and subsurface (exclusive easement for permanent portal operations), to allow Metro to construct, maintain, repair, and operate rail service at this location. The Project is sensitive to these easements, including Metro's future plans to expand accessibility with elevator service, and will not preclude such infrastructure. Coordination with Metro will be ongoing during the environmental review and construction phases of the Project.

The Project may also require temporary relocation of the transit stop at Hill Street & 4th Street during construction. The Project agrees to advanced coordination with affected transit agencies, including Metro and LADOT DASH, to facilitate this temporary relocation.

Parking

Parking is currently allowed on Olive Street and 4th Street adjacent to the Project Site. Construction would result in the temporary loss of approximately nine two-hour metered parking spaces along the east side of Olive Street and approximately 10 four-hour metered parking spaces along the north side of 4th Street. Coordination with LADOT should be included in the Construction Management Plan regarding any temporary loss of on-street parking spaces during construction. As noted in previous sections, up to 10 spaces on Olive Street and 4th Street will be permanently removed to accommodate the Project driveways. The Project will coordinate with the City regarding removal of the on-street meters.

CONSTRUCTION MANAGEMENT PLAN

A detailed Construction Management Plan, including street closure information, a detour plan, haul routes, and a staging plan, would be prepared and submitted to the City for review and approval, prior to commencing construction. The Construction Management Plan would formalize how construction would be carried out and identify specific actions that would be required to reduce effects on the surrounding community. The Construction Management Plan shall be based on the nature and timing of the specific construction activities and other projects in the vicinity of the Project Site, and shall include, but not be limited to, the following elements, as appropriate:

- Advance, bilingual notification of adjacent property owners and occupants of upcoming construction activities, including durations and daily hours of operation

- Prohibition of construction worker or equipment parking on adjacent streets

- Temporary pedestrian and bicycle traffic controls during all construction activities adjacent to Olive Street, 4th Street, and Hill Street, to ensure traffic safety on public rights-of-way

- Temporary traffic control during all construction activities adjacent to public rights-of-way to improve traffic flow on public roadways (e.g., flag men)

- Scheduling of construction activities to reduce the effect on traffic flow on surrounding arterial streets during peak commute hours

- Potential sequencing of construction activity for the Project to reduce the amount of construction-related traffic on arterial streets

- Containment of construction activity within the Project Site boundaries

- Construction-related vehicles/equipment shall not park on surrounding public streets

- Safety precautions for pedestrians and bicyclists through such measures as alternate routing and protection barriers shall be implemented as appropriate

- Scheduling of construction-related deliveries, haul trips, etc., so as to occur outside the commuter peak hours to the extent feasible

Section 4G
Parking

This section provides an analysis of the proposed parking and the potential parking impacts of the Project.

PARKING SUPPLY

The Project will provide a total of 750 parking spaces on-site within a three-level subterranean parking garage. The Project will also provide both long-term and short-term bicycle parking spaces, to meet or exceed the LAMC and Specific Plan requirements, as applicable. Access would be provided via driveways along Olive Street and 4th Street.

VEHICLE PARKING CODE REQUIREMENTS

LAMC Parking Analysis

The parking requirements of the Project were calculated by applying the appropriate parking ratios from LAMC Section 12.21A.4(a)(b) for residential and hotel uses and LAMC Section 12.21A.4(c) for commercial uses. Per the LAMC parking rates, detailed in Table 10, the Project is required to provide a total of 1,632 parking spaces. However, the Project Site is located within the Specific Plan, which has applicable parking ratios that supersede the LAMC.

Specific Plan Code Parking Analysis

The Specific Plan allows for reduced parking ratios as compared to the LAMC. The parking requirements of the Project were calculated by applying the appropriate parking ratios from Section 10.3b, which details specific rates for projects located within 1,500 feet of a fixed rail transit station. As detailed in Section 10.3b, hotels and non-residential uses have no minimum parking requirements. The parking requirements for residential uses are detailed in Table 10.

Per the Specific Plan, the Project would require a total of 216 spaces for the 432 residential units. The Project's proposed 750 spaces will exceed the Specific Plan requirements for on-site parking supply.

BICYCLE PARKING CODE REQUIREMENTS

LAMC Section 12.21.A.16 details the bicycle parking requirements for new developments. However, new bicycle parking requirements have been developed by the City and the Project would follow the new requirements set out in Case No. CPC-2016-4216-CA and Council File No. 12-1297-S1.

Per the updated LAMC and as shown in Table 11, the Project is required to provide a total of 375 bicycle parking spaces, including 105 short-term and 270 long-term spaces. The Project will meet the required on-site bicycle space supply for both short-term and long-term.

TABLE 10
VEHICLE CODE PARKING REQUIREMENTS

PROJECT SUMMARY	
Total Base City Code Parking Requirement [a]	**1,632**
Total Specific Plan Code Parking Requirement [b]	**216**
Total Parking Provided	**750**

BASE CITY CODE PARKING ANALYSIS [a]							
Land Use	**Size**		**Parking Rate**				**Total Spaces**
Residential							
< 3 habitable rooms (studio)	42	du	1.00 sp	/	1	du	42
= 3 habitable rooms (1 bedroom)	177	du	1.50 sp	/	1	du	266
> 3 habitable rooms (2+ bedrooms)	213	du	2.00 sp	/	1	du	426
Hotel							
First 30 guestrooms	30	rms	1.00 sp	/	1	rm	30
Next 30 guestrooms	30	rms	1.00 sp	/	2	rms	15
Remaining guestrooms	455	rms	2.00 sp	/	3	rms	304
Restaurant and Bars, General	43,254	sf	10.00 sp	/	1,000	sf	433
Retail Stores, General	28,836	sf	4.00 sp	/	1,000	sf	116
Total Base City Code Parking Requirement							**1,632**

SPECIFIC PLAN CODE PARKING ANALYSIS [b]							
Land Use	**Size**		**Parking Rate**				**Total Spaces**
Residential [a]							
< 2 habitable rooms	0	du	1.00 sp	/	4	dus	0
>= 2 habitable rooms	432	du	1.00 sp	/	2	dus	216
Hotel	*no minimum parking requirement*						
Non-residential uses	*no minimum parking requirement*						
Specific Plan Code Parking Requirement							**216**

Notes:

[a] Parking rates per LAMC Section 12.21. A4 (a)(b) for residential and hotel uses and Section 12.21. A4 (c) for commercial uses.
[b] Parking rates per Bunker Hill Specific Plan Section 10.A.3b for projects located within 1,500 feet of a fixed rail transit station.

TABLE 11
BICYCLE CODE PARKING REQUIREMENTS

Project	Size	Bicycle Short-Term Parking Rate [a]	Total Short-Term Bicycle Spaces	Bicycle Long-Term Parking Rate [a]	Total Long-Term Bicycle Spaces
Residential					
First 25 units	25 du	1.00 sp / 10 du	2	1.00 sp / 1 du	25
Next 75 units	75 du	1.00 sp / 15 du	5	1.00 sp / 1.5 du	50
Next 100 units	100 du	1.00 sp / 20 du	5	1.00 sp / 2 du	50
Remaining units	232 du	1.00 sp / 40 du	6	1.00 sp / 4 du	58
Subtotal - Residential	432 du		18		183
Hotels	515 rms	1.00 sp / 10 rms	51	1.00 sp / 10 rms	51
Commercial/Restaurant	72,090 sf	1.00 sp / 2,000 sf	36	1.00 sp / 2,000 sf	36
Total Bicycle Parking Required			**105**		**270**

Notes:
[a] Bicycle parking rates per Section 12.21.A16(a).

Chapter 5
Summary and Conclusions

This study was undertaken to analyze the potential transportation impacts of the Angels Landing project on the Study Area street system. The following summarizes the results of this analysis:

- The Project proposes a mixed-use development consisting of 432 multi-family high-rise units with a mix of affordable housing units, 515 hotel rooms within two buildings, and approximately 72,090 sf of commercial space, which may ultimately include cultural/civic spaces. The Project is anticipated to be completed by Year 2028.

- The Project would provide a total of 750 vehicle parking spaces within a three-level subterranean parking garage and would provide the required on-site bicycle parking spaces.

- Vehicular access to the Project Site would be provided along Olive Street and 4th Street, with heavy vehicle loading occurring at a dedicated driveway on Olive Street. No unusual safety concerns were identified and queuing is not anticipated to adversely affect City arterials.

- The Project is consistent with the City's plans, programs, ordinances, and policies and would not generate significant VMT impacts nor geometric design hazard impacts.

- The Project does not exceed the significance criteria for impacts on Caltrans controlled off-ramps and impacts were determined to be less than significant at all off-ramps evaluated.

- After application of appropriate trip reduction credits, the Project is estimated to generate 398 morning peak hour trips and 585 afternoon peak hour trips.

- The Project includes a well-designed internal circulation system to accommodate vehicular, pedestrian, and bicycle traffic, as well as sufficient on-site TNC storage areas to reduce internal stacking without impeding through traffic movements on City streets.

- The Project will intensify the volume of pedestrians, bicyclists, and transit users in the area, and will accommodate these additional patrons through efficient design principals that incorporate pedestrian passages, bicycle-friendly amenities, and welcoming treatments surrounding existing transit areas. Capacity of adjacent transit service was determined to be more than sufficient to accommodate the additional ridership.

- The Project enhances existing transit opportunities at the Metro portal and transit stop through added amenities, increased sidewalk widths, additional lighting, pedestrian paseos, and increased connectivity within Metro's transfer-zone.

- All construction activities would occur outside of the commuter morning and afternoon peak hours to the extent feasible and will not result in significant traffic impacts. A Construction Management Plan would ensure that construction impacts are less than significant.

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Appendix A

Memorandum of Understanding

LADOT

Transportation Assessment Memorandum of Understanding (MOU)

This MOU acknowledges that the Transportation Assessment for the following Project will be prepared in accordance with the latest version of LADOT's Transportation Assessment Guidelines:

I. PROJECT INFORMATION

Project Name: Angels Landing

Project Address: 332, 350, and 358 S. Olive Street, 351 and 361 S. Hill Street, and 417 and 427 W. 4th Street, Los Angeles, CA 90013

Project Description: The Project would construct a total of 432 multi-family high-rise units, including 252 apartment units, 180 condominium units, 515 hotel rooms within two buildings, approximately 72,090 square feet (sf) of commercial space, which may include cultural/civic spaces.

LADOT Project Case Number: ______ Project Site Plan attached? *(Required)* ■ Yes ☐ No

II. TRIP GENERATION

Geographic Distribution: N 18 / 10 / 10 % S 40 / 55 / 45 % E 20 / 10 / 20 % W 22 / 25 / 25 %

Illustration of Project trip distribution percentages at Study intersections attached? *(Required)* ■ Yes ☐ No

Trip Generation Rate(s): ITE 10th Edition / Other ______

Trip Generation Adjustment *(Exact amount of credit subject to approval by LADOT)*	**Yes**	**No**
Transit Usage	■	☐
Transportation Demand Management	☐	■
Existing Active Land Use	☐	■
Previous Land Use	☐	■
Internal Trip	■	☐
Pass-By Trip	■	☐

Trip generation table including a description of the proposed land uses, ITE rates, estimated morning and afternoon peak hour volumes (ins/outs/totals), proposed trip credits, etc. attached? *(Required)* ■ Yes ☐ No

	IN	OUT	TOTAL
AM Trips	184	214	398
PM Trips	347	238	585

Daily Trips 5,410
(From VMT Calculator)

III. STUDY AREA AND ASSUMPTIONS

Project Buildout Year: 2028 Ambient Growth Rate: 1 % Per Yr.

Related Projects List, researched by the consultant and approved by LADOT, attached? *(Required)* ■ Yes ☐ No

Map of Study Intersections/Segments attached? ■ Yes ☐ No

STUDY INTERSECTIONS *(May be subject to LADOT revision after access, safety and circulation analysis)*

1 See Table 1
2
3
4
5
6

Is this Project located on a street within the High Injury Network? ☐ Yes ■ No

IV. ACCESS ASSESSMENT

Is the project on a lot that is 0.5-acre or more in total gross area? ■ Yes ☐ No

Is the project's frontage 250 linear feet or more along an Avenue or Boulevard as classified by the City's General Plan? ■ Yes ☐ No

Is the project's building frontage encompassing an entire block along an Avenue or Boulevard as classified by the City's General Plan? ■ Yes ☐ No

V. CONTACT INFORMATION

	CONSULTANT	DEVELOPER
Name:	Gibson Transportation Consulting, Inc.	Angels Landing Partners, LLC c/o Peebles Corporation
Address:	555 W. 5th St., Suite 3375, Los Angeles, CA 90013	2020 Ponce de Leon Blvd, Unit 907, Coral Gables, PL 33134
Phone Number:	(213) 683-0088	(305) 993-5050
E-Mail:	bhartshorn@gibsontrans.com	

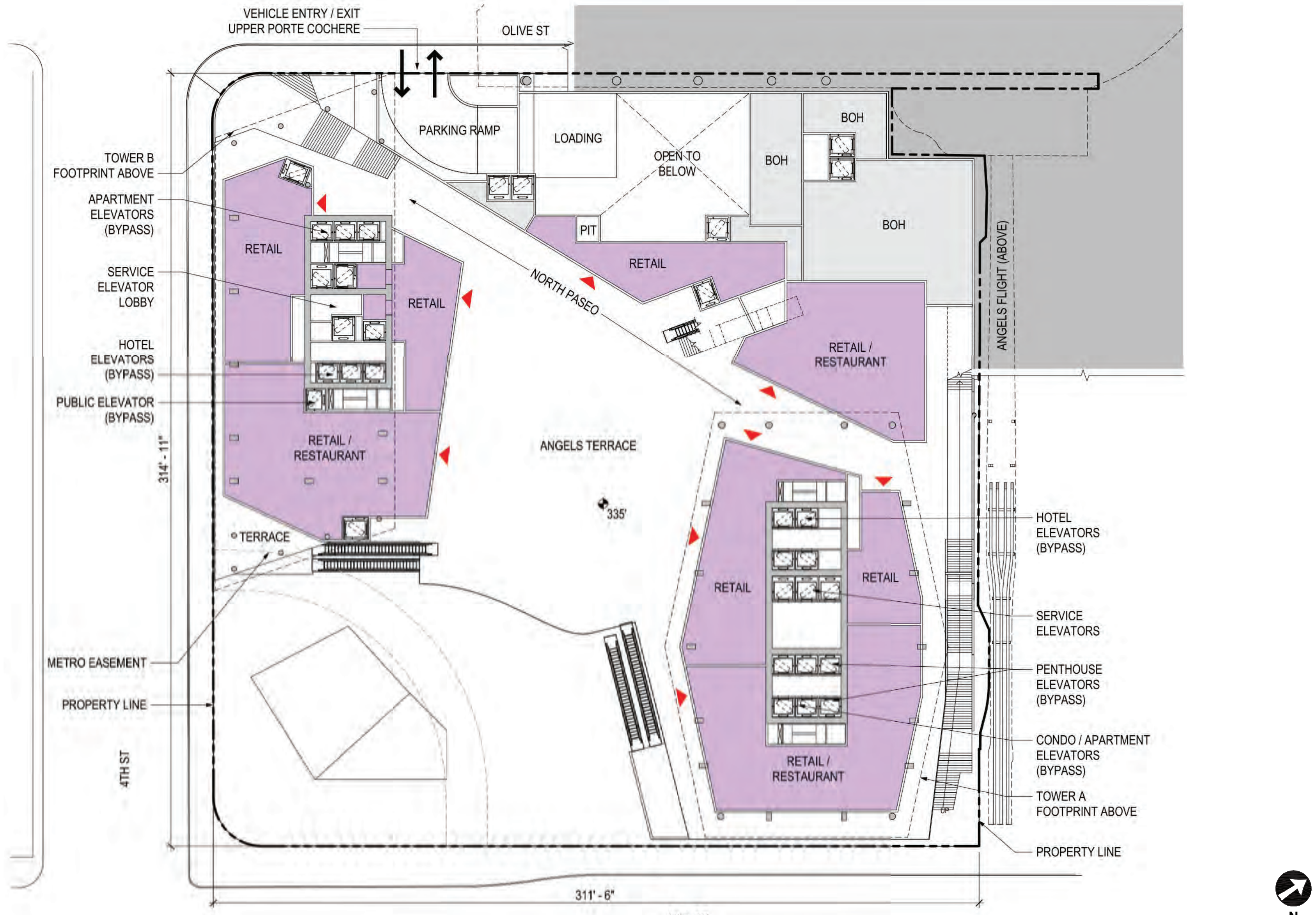
Approved by: x Brian Hartshorn 12/19/19 x [signature] 1/8/20

Consultant's Representative | Date | LADOT Representative | *Date

*MOUs are generally valid for two years after signing. If after two years a transportation assessment has not been submitted to LADOT, the developer's representative shall check with the appropriate LADOT office to determine if the terms of this MOU are still valid or if a new MOU is needed.

Source: Handel Architects, LLP. October, 2019.

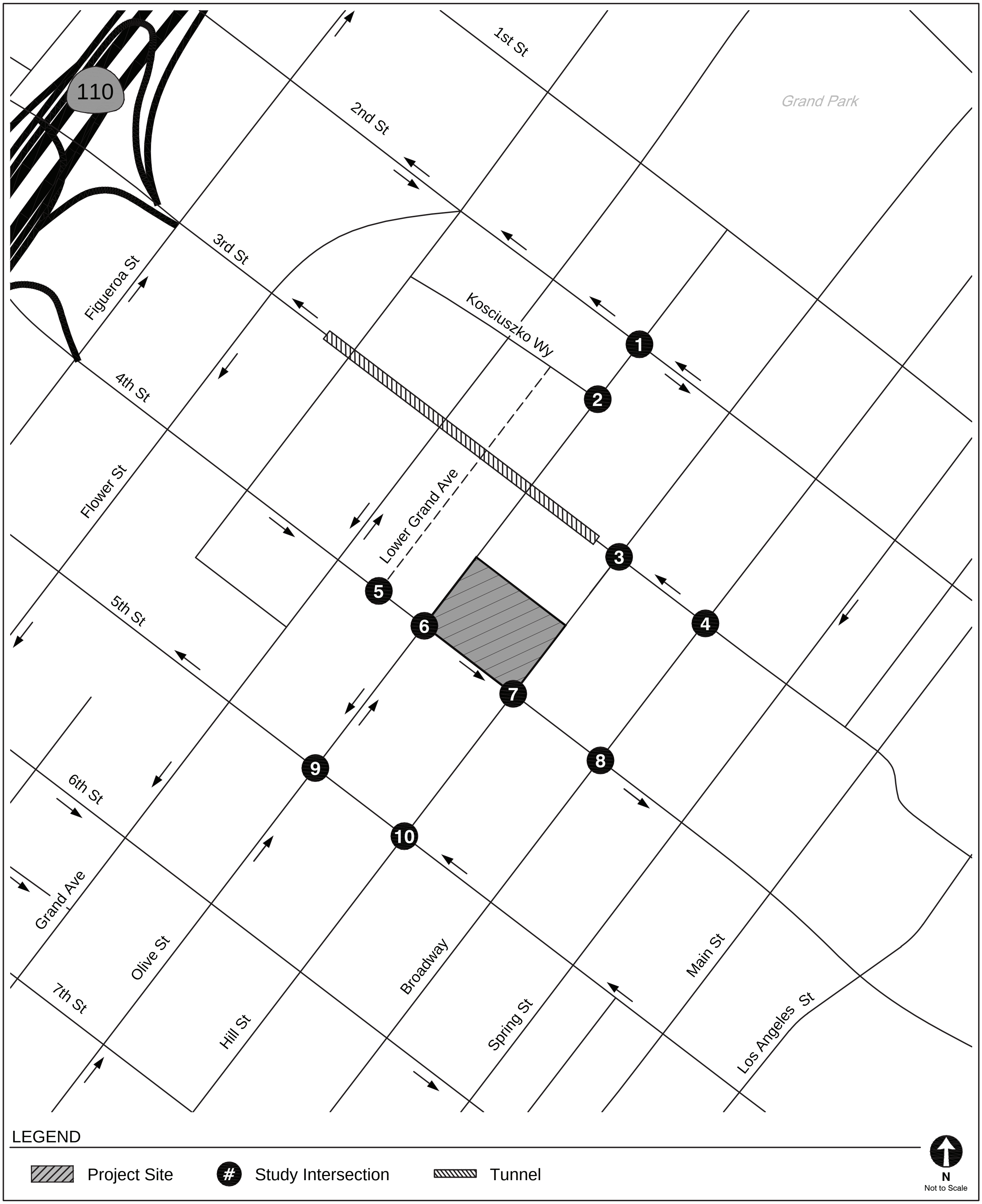
PROJECT SITE PLAN LOWER PORTE COCHERE	FIGURE 1A



Source: Handel Architects, LLP. October, 2019.

PROJECT SITE PLAN
ANGELS TERRACE

FIGURE
1B

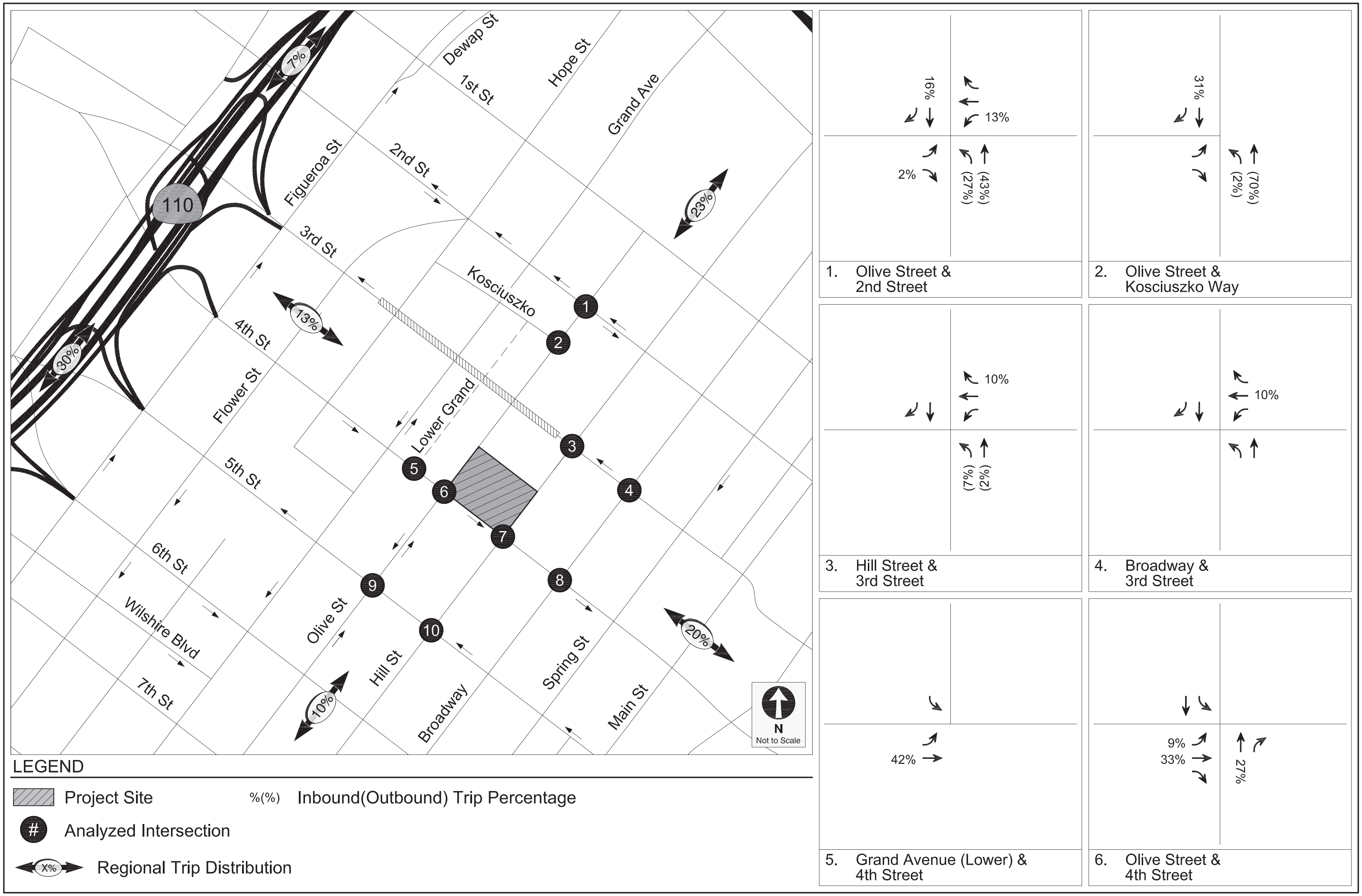


STUDY AREA & ANALYZED INTERSECTIONS

FIGURE 2

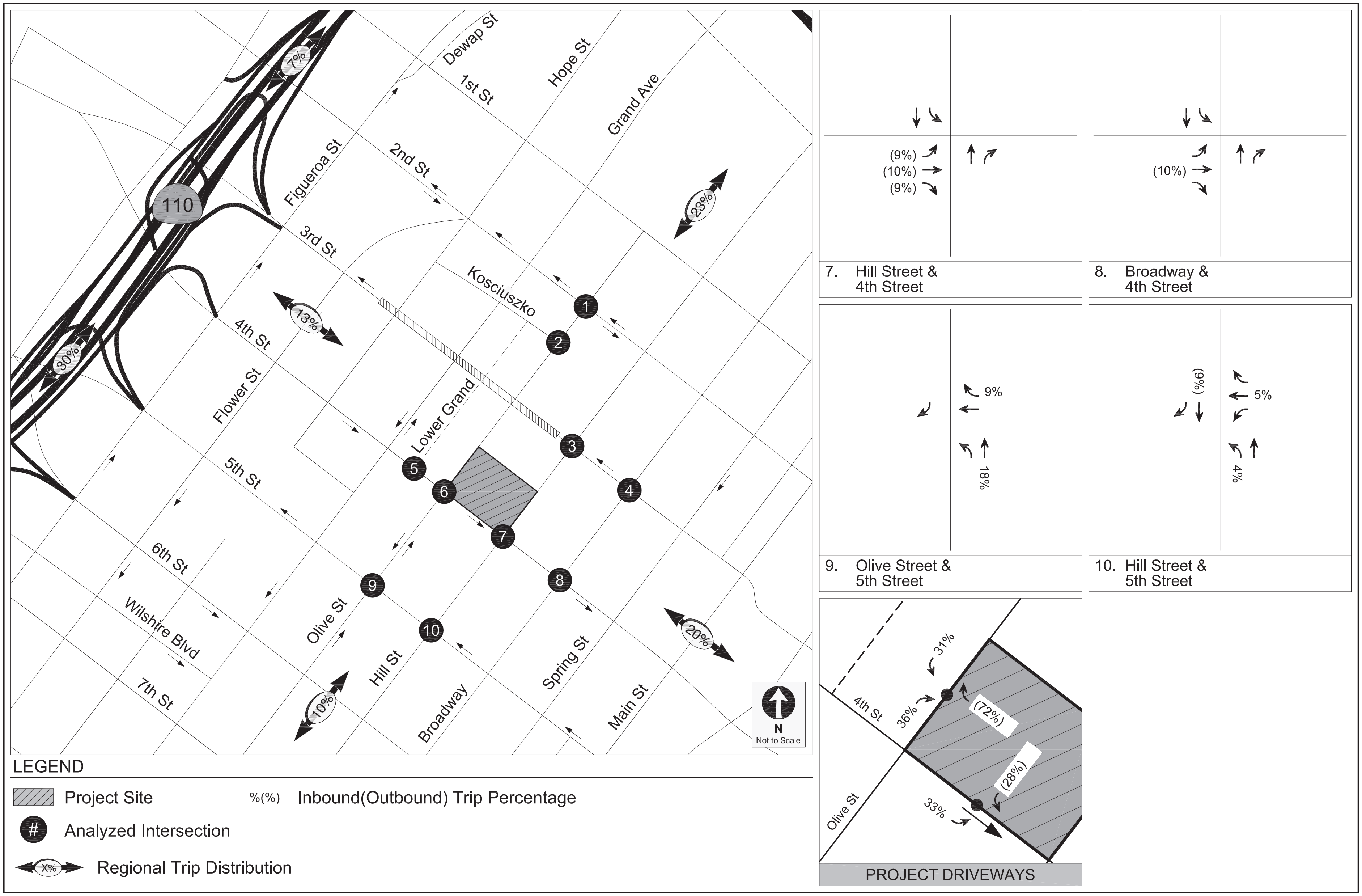
TABLE 1
ANGELS LANDING
STUDY INTERSECTIONS

No.	North / South Street	East / West Street
1.	Olive Street	2nd Street
2.	Olive Street	Kociuszko Way
3.	Hill Street	3rd Street
4.	Broadway	3rd Street
5.	Grand Avenue (Lower)	4th Street
6.	Olive Street	4th Street
7.	Hill Street	4th Street
8.	Broadway	4th Street
9.	Olive Street	5th Street
10.	Hill Street	5th Street



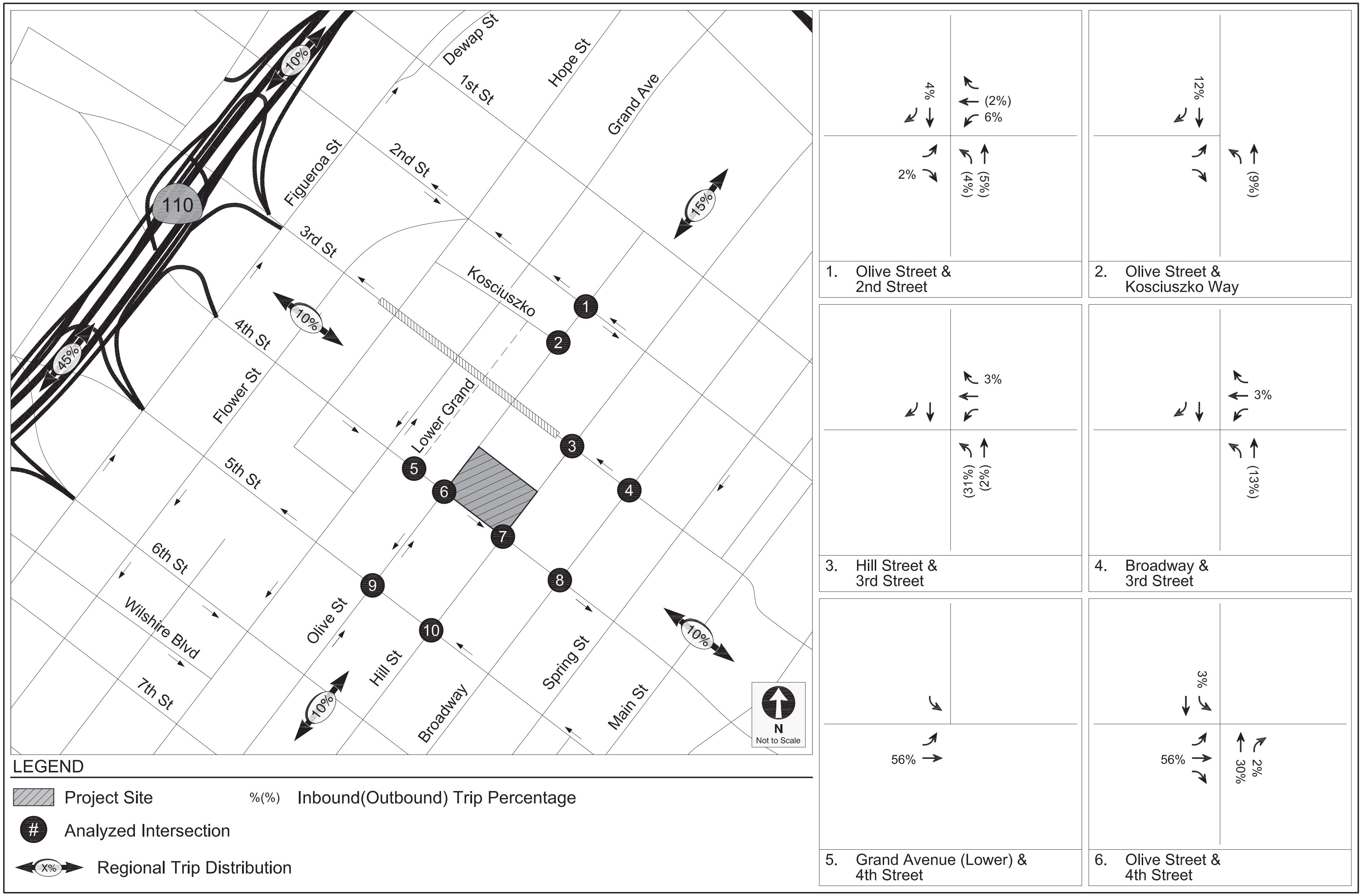
TRIP DISTRIBUTION
RESIDENTIAL

FIGURE
3A



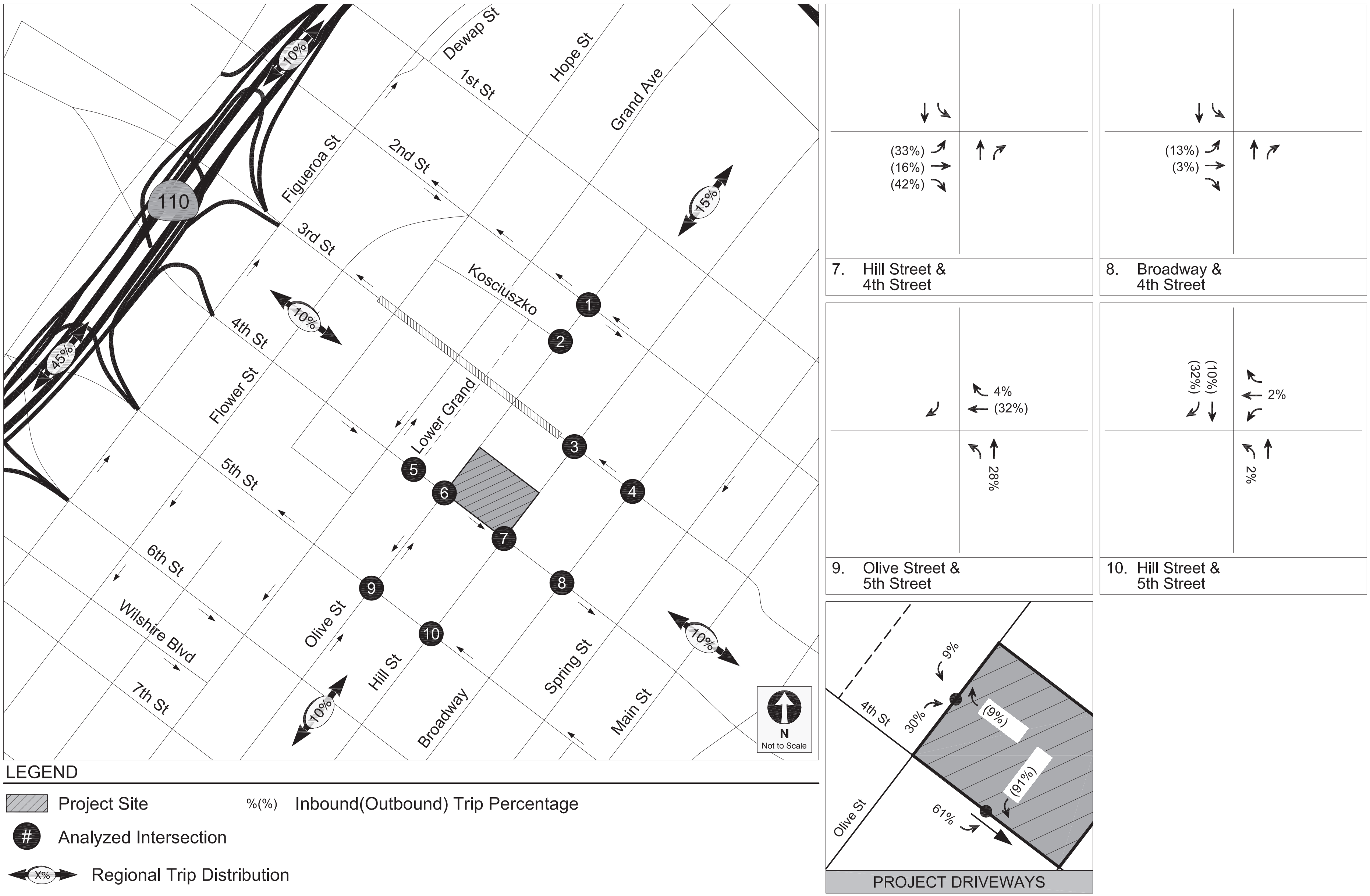
TRIP DISTRIBUTION
RESIDENTIAL

FIGURE
3A(CONT.)



TRIP DISTRIBUTION
HOTEL

FIGURE
3B



LEGEND

Project Site

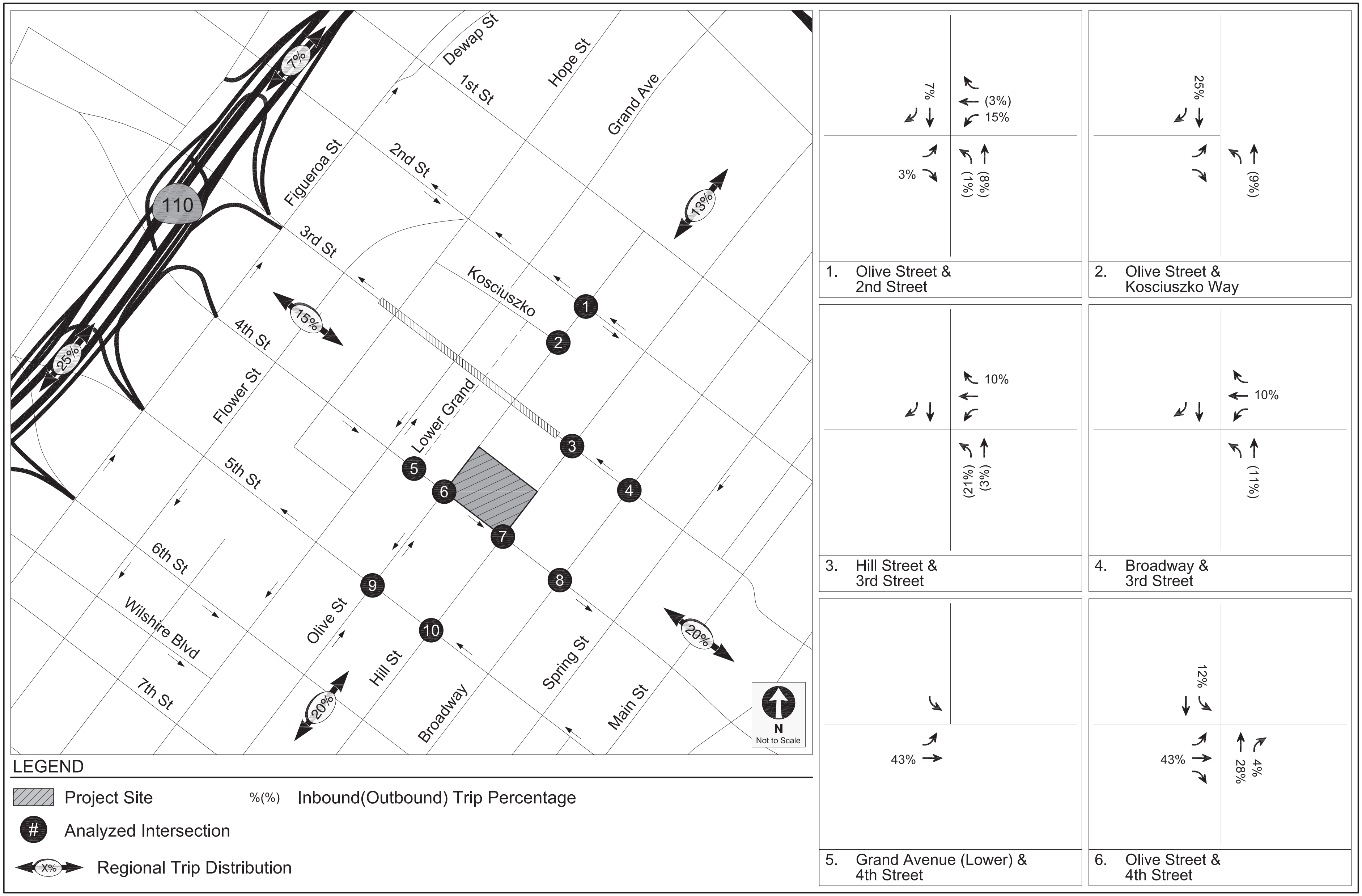
%(%) Inbound(Outbound) Trip Percentage

Analyzed Intersection

Regional Trip Distribution

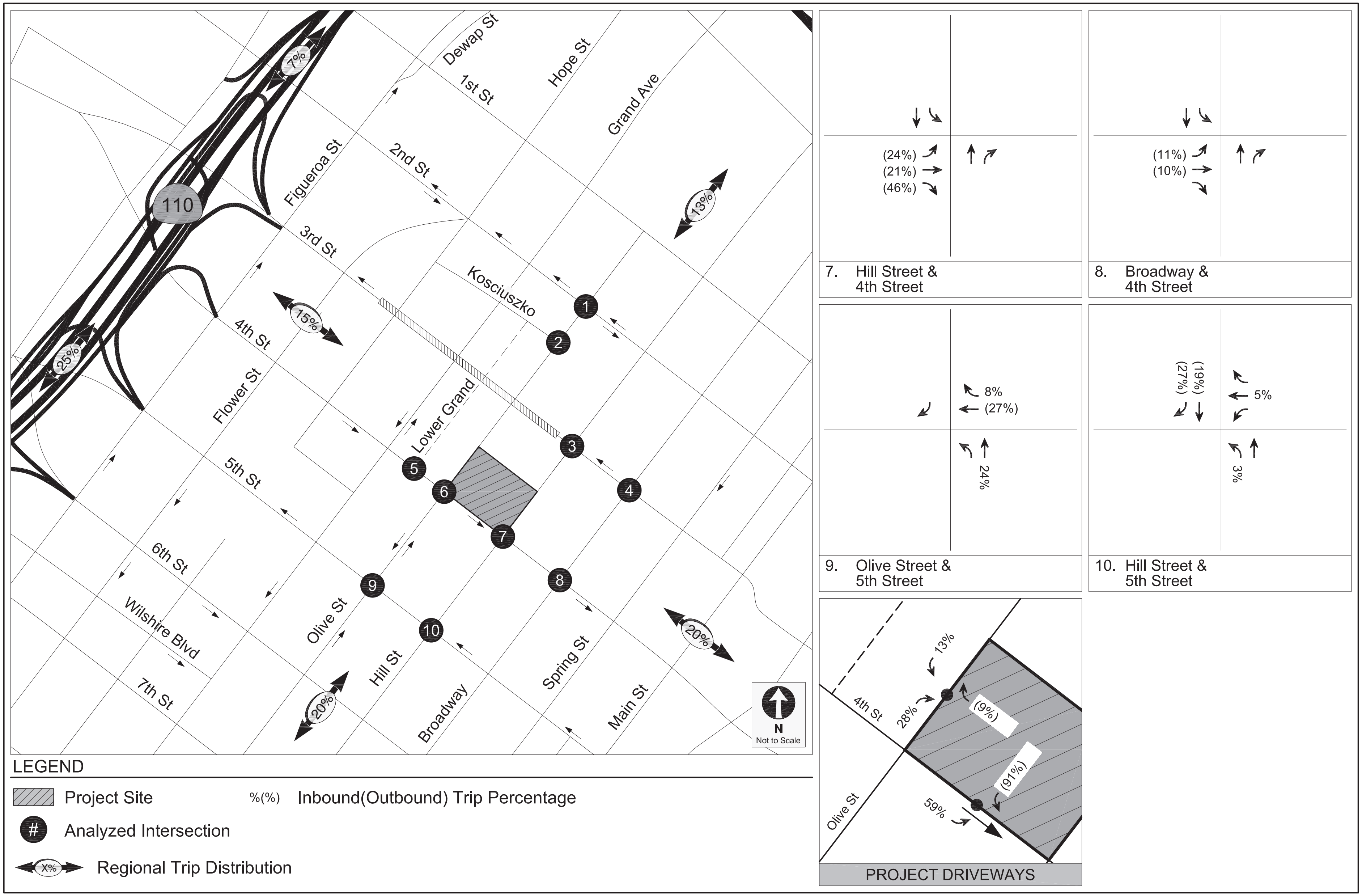
TRIP DISTRIBUTION
HOTEL

FIGURE
3B(CONT.)



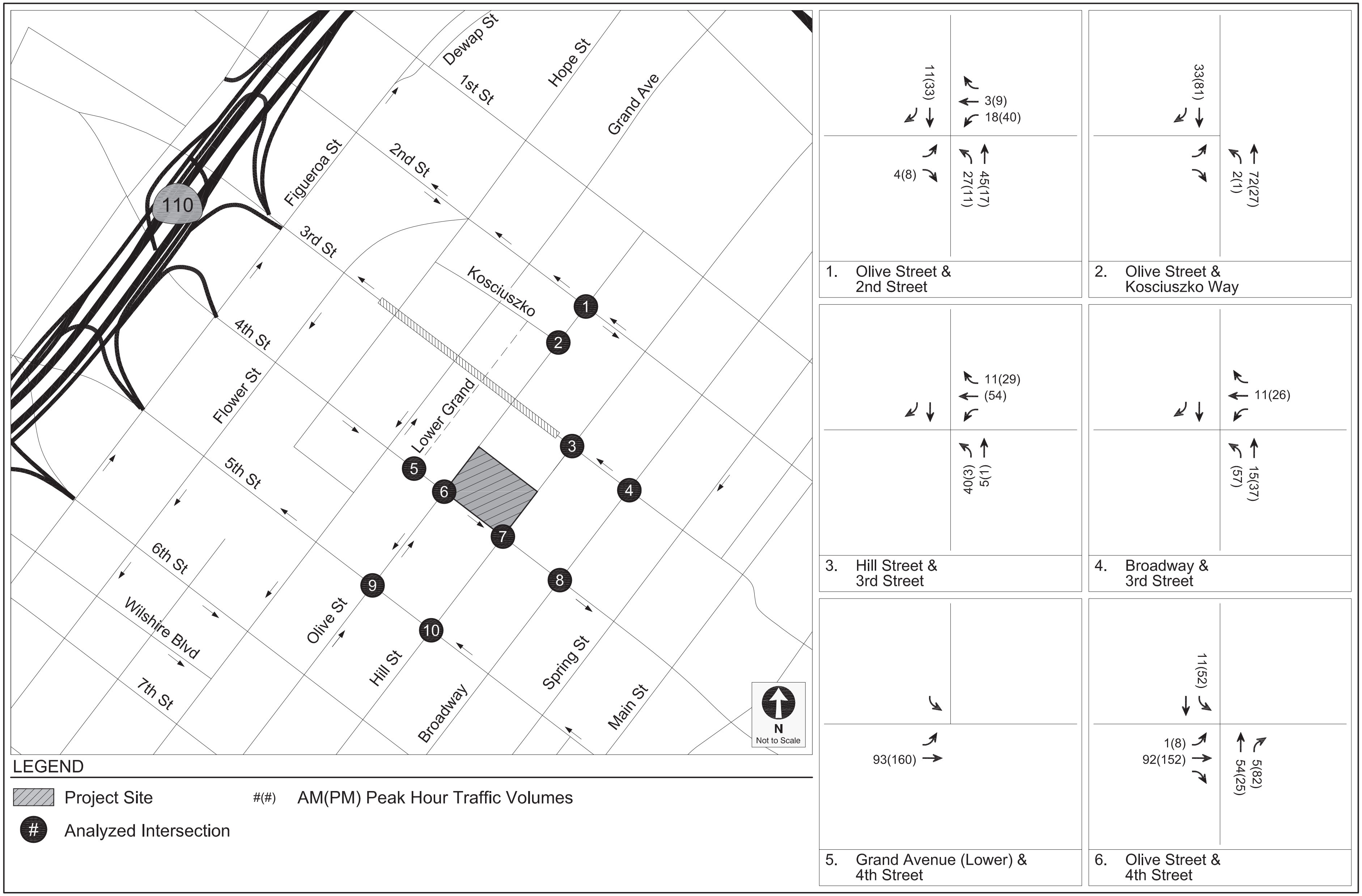
TRIP DISTRIBUTION
COMMERCIAL

FIGURE 3C



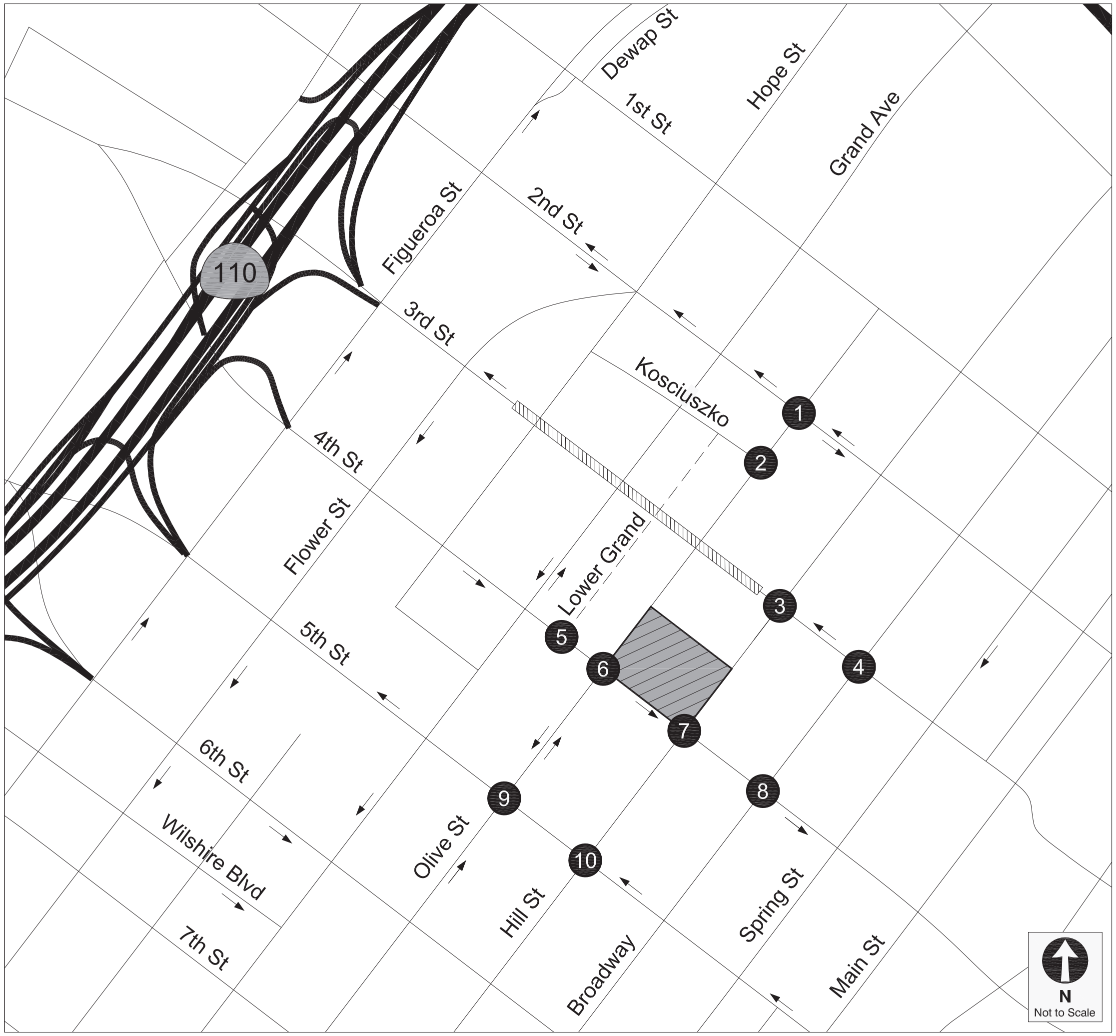
TRIP DISTRIBUTION
COMMERCIAL

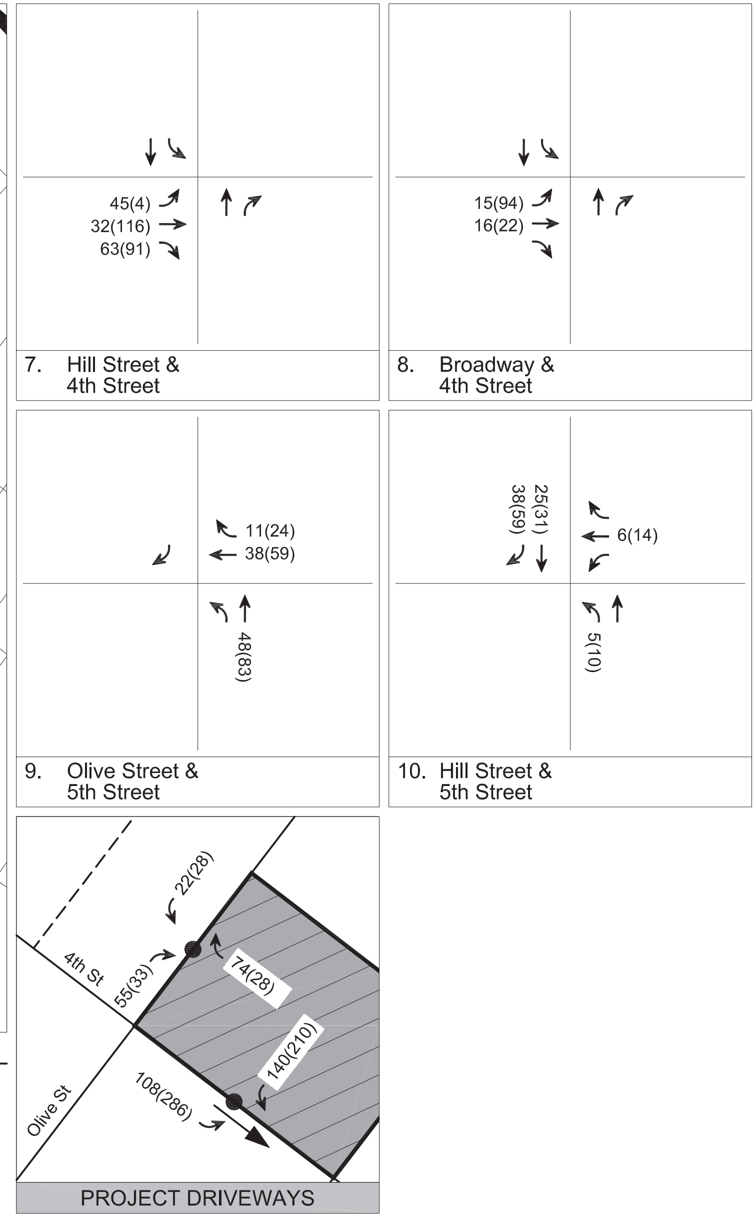
FIGURE
3C(CONT.)



TOTAL PROJECT-ONLY
PEAK HOUR TRAFFIC VOLUMES

FIGURE
4





LEGEND

Project Site

#(#) AM(PM) Peak Hour Traffic Volumes

\# Analyzed Intersection

TOTAL PROJECT-ONLY
PEAK HOUR TRAFFIC VOLUMES

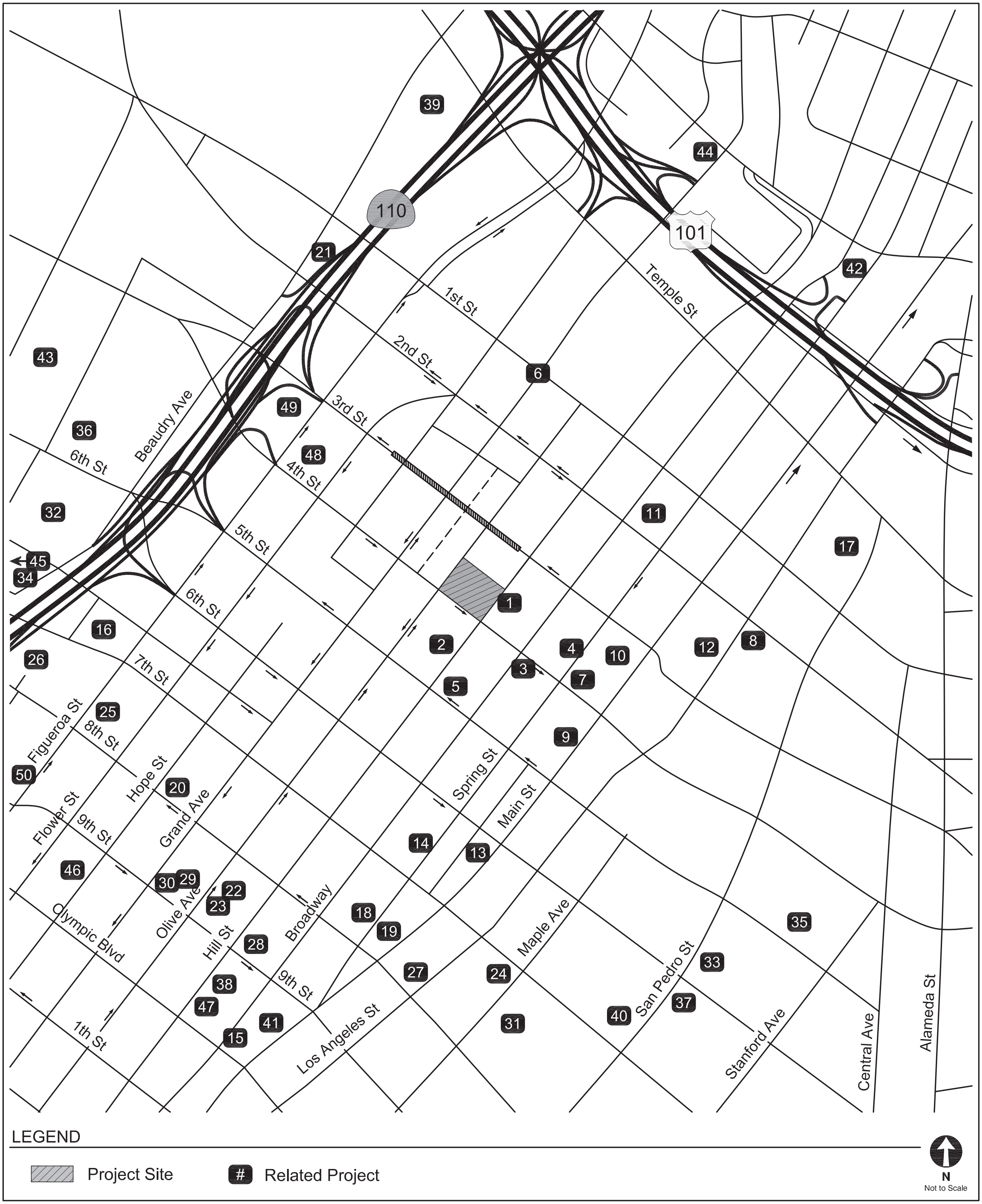
FIGURE
4(CONT.)

TABLE 2
ANGELS LANDING
PROJECT TRIP GENERATION

TRIP GENERATION RATES [a]								
Land Use	**ITE Land Use**	**Rate**	**Morning Peak Hour**			**Afternoon Peak Hour**		
			In	**Out**	**Total**	**In**	**Out**	**Total**
Multi-Family Housing (High-Rise) [b]	222	per Dwelling Unit	12%	88%	0.23	70%	30%	0.30
Hotel	310	per room	59%	41%	0.47	51%	49%	0.60
Shopping Center	820	per 1,000 sf	62%	38%	0.94	48%	52%	3.81
High-Turnover (Sit-Down) Restaurant	932	per 1,000 sf	55%	45%	9.94	62%	38%	9.77
Quality Restaurant	931	per 1,000 sf	55%	45%	0.73	67%	33%	7.80

TRIP GENERATION ESTIMATES								
Land Use	**ITE Land Use**	**Rate**	**Morning Peak Hour**			**Afternoon Peak Hour**		
			In	**Out**	**Total**	**In**	**Out**	**Total**
Proposed Project [f]								
Multi-Family Housing (High-Rise)	222	432 du	12	87	99	91	39	130
Subtotal - Residential			***12***	***87***	***99***	***91***	***39***	***130***
Hotel	310	515 rooms	143	99	242	158	151	309
Transit/Walk-In Reduction - 25% [c]			*(36)*	*(25)*	*(61)*	*(40)*	*(38)*	*(78)*
Subtotal - Hotel			***107***	***74***	***181***	***118***	***113***	***231***
Shopping Center (Retail)	820	28,836 sf	17	10	27	53	57	110
Internal Capture Reduction - 20% [d]			*(3)*	*(2)*	*(5)*	*(11)*	*(11)*	*(22)*
Transit/Walk-In Reduction - 25% [c]			*(4)*	*(2)*	*(6)*	*(11)*	*(12)*	*(23)*
Pass-by Reduction - 50% [e]			*(5)*	*(3)*	*(8)*	*(16)*	*(17)*	*(33)*
High-Turnover Restaurant	932	21,627 sf	118	97	215	131	80	211
Internal Capture Reduction - 20% [d]			*(24)*	*(19)*	*(43)*	*(26)*	*(16)*	*(42)*
Transit/Walk-In Reduction - 25% [c]			*(24)*	*(20)*	*(44)*	*(26)*	*(16)*	*(42)*
Pass-by Reduction - 20% [e]			*(14)*	*(12)*	*(26)*	*(16)*	*(10)*	*(26)*
Quality Restaurant	931	21,627 sf	9	7	16	113	56	169
Internal Capture Reduction - 20% [d]			*(2)*	*(1)*	*(3)*	*(23)*	*(11)*	*(34)*
Transit/Walk-In Reduction - 25% [c]			*(2)*	*(2)*	*(4)*	*(23)*	*(11)*	*(34)*
Pass-by Reduction - 10% [e]			*(1)*	*0*	*(1)*	*(7)*	*(3)*	*(10)*
Subtotal - Commercial			***65***	***53***	***118***	***138***	***86***	***224***
TOTAL NEW PROJECT TRIPS [g]			**184**	**214**	**398**	**347**	**238**	**585**

Notes:
Dwelling Unit = du.
[a] Source: *Trip Generation Manual, 10th Edition* , Institute of Transportation Engineers, 2017.
[b] Per LADOT's *Transportation Assessment Guidelines,* the morning and afternoon trip rates are based on Multi-Family High-Rise rates for Dense Multi-Use Urban Areas. These rates are not subjected to any transit/walk-in adjustment.
[c] Per LADOT's *Transportation Assessment Guidelines,* the Project Site is located adjacent to a transit station (Metro Purple / Red Line Pershing Square Station), therefore a transit reduction is applied to account for transit usage and walking visitor arrivals from the surrounding neighborhoods and adjacent commercial developments, and for arrivals via taxi and/or carpool services.
[d] Internal capture adjustments account for person trips made between distinct land uses within a mixed-use development (e.g., residents and hotel guests visiting the commercial uses).
[e] Per Attachment H of LADOT's *Transportation Assessment Guidelines* , pass-by adjustments account for Project trips made as an intermediate stop on the way from an orig a primary trip destination without route diversion.
[f] Land uses proposed as part of the Project include conservative assumptions for retail and restaurant uses, some of which space could be programmed with cultural/civic uses as plans are finalized.
[g] Per LADOT's *VMT Calculator Version 1.2,* November 11, 2019, the Project is anticipated to generate 5,410 daily vehicle trips.



LOCATIONS OF RELATED PROJECTS

FIGURE 5

TABLE 3
ANGELS LANDING
RELATED PROJECTS

No	Project Name	Address	Description	Trip Generation [a] Daily	Morning Peak Hour Inbound	Morning Peak Hour Outbound	Morning Peak Hour Total	Afternoon Peak Hour Inbound	Afternoon Peak Hour Outbound	Afternoon Peak Hour Total
1	Equity Residential Mixed-Use	340 S Hill St	406 apartment units, 22 affordable units, 2,980 sf office, and 2,630 sf retail	2,253	36	129	165	133	75	208
2 [b]	5th & Olive (formerly Park Fifth Project)	437 S Hill St	660 condominium units and 13,742 sf restaurant	4,707	71	273	344	279	158	437
3 [b]	Mixed-Use	400 S Broadway	450 apartment units, 6,904 sf retail, and 5,000 sf bar	3,292	50	187	237	193	112	305
4	4th & Spring Hotel	361 S Spring St	315 hotel rooms and 2,000 sf meeting space	2,273	91	59	150	84	85	169
5	5th & Hill	323 W 5th St	190 room hotel, 6,100 sf meeting room, 31 apartment units, and 29,200 sf restaurant	2,809	73	49	122	126	100	226
6 [d]	Grand Avenue Project	100 S Grand Ave	412 apartment units, 1,648 condominium units, 225,300 sf retail, 53,000 sf supermarket, 67,000 sf restaurant, 50,000 sf health club, 250-seat event facility, 275 hotel rooms, and 681,000 sf office	21,631	919	632	1,551	1,120	1,344	2,464
7 [b]	Hellman / Banco Building	354 S Spring St	212 apartment units	1,410	22	86	108	85	46	131
8	Tribune (LA Times) South Tower Project	222 E 2nd St	107 condominium units, 534,044 sf office, and 7,200 sf retail	4,006	467	93	560	118	423	541
9	433 S Main Street	433 S Main St	196 condominium units, 5,300 sf retail, and 900 sf restaurant	1,450	32	72	104	61	37	98
10	Medallion Phase 2	300 S Main St	471 apartment units, 27,780 sf restaurant, and 5,190 sf retail	4,691	143	243	386	257	153	410
11	Mixed-Use (Times Mirror Square)	100 S Broadway	1,127 apartment units, 285,088 sf office, 50,000 sf supermarket, and 75,589 sf restaurant	8,535	94	341	435	294	38	332
12	Budokan of Los Angeles	237 S Los Angeles St	43,453 sf sports complex	1,869	79	50	129	161	98	259
13	Mixed-Use	601 S Main St	452 apartment units and 25,000 sf retail	2,686	36	144	179	152	87	238
14	Spring St Hotel	633 S Spring St	176 hotel rooms, 5,290 sf bar, and 8,430 sf restaurant	2,045	83	33	116	97	99	196
15	Broadway Mixed-Use	955 S Broadway	163 apartment units and 6,406 sf retail	1,275	21	72	93	74	43	117
16 [b] [c]	Wilshire Grand Project	900 W Wilshire Blvd	560 hotel rooms, 100 apartment units, 150,000 sf office and 275,000 sf retail/restaurant	3,624	725	75	800	94	764	858
17	LA Civic Center Office	150 N Los Angeles St	712,500 sf office, 35,000 sf retail, and 2,500 sf child care	13,534	930	118	1,048	435	942	1,377
18 [b]	Mixed-Use	737 S Spring St	320 apartment units and 25,000 sf pharmacy/drugstore	3,942	72	141	213	167	116	283
19 [b]	Mixed-Use	732 S Spring St	400 apartment units and 15,000 sf retail	3,359	59	152	211	164	104	268
20	8th/Grand/Hope Project	754 S Hope St	409 condominium units and 7,329 sf retail	2,315	35	137	172	137	78	215
21	Beaudry Ave & 2nd St Mixed-Use Project	130 S Beaudry Ave	220 apartment units and 9,000 sf other	1,159	8	76	84	76	29	105
22 [b]	Mixed-Use	820 S Olive St	589 apartment units and 4,500 sf retail	3,309	63	202	265	195	106	301
23	Mixed-Use	840 S Olive St	303 condominium units and 9,680 sf restaurant	3,071	81	166	247	174	96	270
24	7th & Maple Mixed-Use	701 S Maple Ave	452 apartment units, 6,800 sf retail, and 6,800 sf restaurant	3,199	67	179	246	185	105	290
25	Mitsui Fudosan (Eighth and Figueroa Tower)	744 S Figueroa St	436 apartment units, 3,750 sf restaurant, and 3,750 sf retail	2,644	37	146	183	158	86	244
26	945 W 8th Street	945 W 8th St	781 apartment units, and 6,700 sf commercial	2,869	63	146	209	144	91	235
27	Mixed-Use	755 S Los Angeles St	60,243 sf office, 16,694 sf retail, and 26,959 sf restaurant	2,482	110	57	167	105	100	205
28	Alexan South Broadway	850 S Hill St	305 apartment units, 3,500 sf retail, and 3,500 sf restaurant	1,998	29	108	137	117	67	184
29	845 Olive & 842 Grand Mixed-Use	845 S Olive St	208 apartment units and 2,430 sf retail	1,305	25	76	101	77	42	119
30	Embassy Tower	848 S Grand Ave	420 condominium units and 38,500 sf retail	3,882	66	144	210	212	165	377
31	Southern California Flower Market Project	755 S Wall St	323 apartment units, 53,200 sf office, and 8,820 sf commercial	2,499	112	79	191	164	141	305
32	Tenten Wilshire Expansion (the Icon)	1027 W Wilshire Blvd	402 condominium units and 4,728 sf retail	1,498	21	92	113	83	53	136
33	Weingart Tower - Affordable Housing	554 S San Pedro St	378 affordable / 4-market-rate apartment units, 1,758 sf retail, 4,410 sf office, and 5,932 sf flex	629	30	29	59	31	32	63
34	1018 W Ingraham St	1018 W Ingraham St	43 apartment units and 7,400 sf retail	602	8	21	29	31	23	54
35	Mixed-Use	609 E 5th St	151 apartment units	1,004	15	62	77	61	33	94

TABLE 3 (CONTINUED)
ANGELS LANDING
RELATED PROJECTS

No	Project Name	Address	Description	Trip Generation [a]						
				Daily	Morning Peak Hour			Afternoon Peak Hour		
					Inbound	Outbound	Total	Inbound	Outbound	Total
36	Sapphire Mixed-Use (Revised)	1111 W 6th St	362 apartment units and 25,805 sf retail	587	(71)	117	46	104	(51)	53
37	600 S San Pedro St	600 S San Pedro St	303 apartment units and 19,909 sf commercial	636	38	25	63	30	37	67
38	Hill Street Mixed-Use	920 S Hill St	239 apartment units and 5,400 sf retail	1,476	23	84	107	87	50	137
39	Ferrante	1000 W Temple St	1,500 apartment units and 30,000 sf retail	11,256	170	622	792	658	383	1,041
40	655 S San Pedro Street Residential	655 S San Pedro St	81 apartment units	539	8	33	41	33	17	50
41 b]	Broadway Palace	928 S Broadway	667 apartment units, 17 condominium units, and 58,800 sf retail	4,715	21	229	250	272	109	381
42 [b]	La Plaza Cultura Village	527 N Spring St	345 apartment units, 23,000 sf retail, 21,000 sf specialty retail, and 11,000 sf restaurant	3,585	49	118	167	189	131	320
43	Mixed-Use	1322 W Maryland St	47 apartment units and 760 sf retail	345	6	19	25	20	12	32
44	Mixed-Use	700 W Cesar Chavez Ave	300 apartment units and 8,000 sf retail	1,511	7	89	96	99	54	153
45	Hotel & Apartments	675 S Bixel St	422 apartment units, 126 hotel rooms, and 4,874 sf retail	3,461	74	173	247	184	116	300
46	949 S Hope Street Mixed-Use Development	949 S Hope St	236 apartment units and 5,954 sf retail	791	8	45	53	43	7	50
47	940 S Hill Mixed-Use	940 S Hill St	232 apartment units and 14,000 sf of retail	1,881	20	80	100	115	53	168
48	Residential	350 S Figueroa St	570 apartment units	965	4	101	105	72	23	95
49	333 S Figueroa St	333 S Figueroa St	224 apartment units, 242 condominium units, 599 hotel rooms, and 28,705 sf commercial	4,997	113	161	274	221	188	409
50	Figueroa Centre	911 S Figueroa St	220 hotel rooms, 200 apartment units, and 94,080 sf commercial	7,141	145	164	309	316	289	605

Notes
[a] Source: Related project information based on available information provided by LADOT (August 9, 2019), Department of City Planning, and recent studies in the area. Related projects include developments within a 0.75-mile radius of the Project Site and is consistent with LADOT's *Transportation Assessment Guidelines* .
[b] Although construction of the related project may be complete, the project was not fully occupied at the time of the NOP or when traffic counts were conducted. Therefore, the related project was considered and listed to provide a more conservative analysis.
[c] The project description and trip generation information is based on *Transportation Study for the Wilshire Grand Redevelopment Project* (Gibson Transportation Consulting, Inc., April 2010), which was reviewed and approved by LADOT in April 2010. The project that was ultimately constructed contains a reduced development program (889 hotel rooms, 369,299 sf office, 34,765 sf retail/restaurant and 46,170 sf of ancillary uses). Thus, the assumptions are conservative.
[d] The project information encompasses the full project, including the completed portions of Parcels L and M-2, and is based on the *Final Environmental Impact Report for the Grand Avenue Project* (Christopher A. Joseph & Associates, November 2006). Although the project has been revised as detailed in *Second Addendum to the Certified EIR The Grand Avenue Project* (Christopher A. Joseph & Associates, April 2014), the project proposed in the Final EIR is more conservative and was therefore considered in the analysis.

Attachment

CITY OF LOS ANGELES VMT CALCULATOR Version 1.2

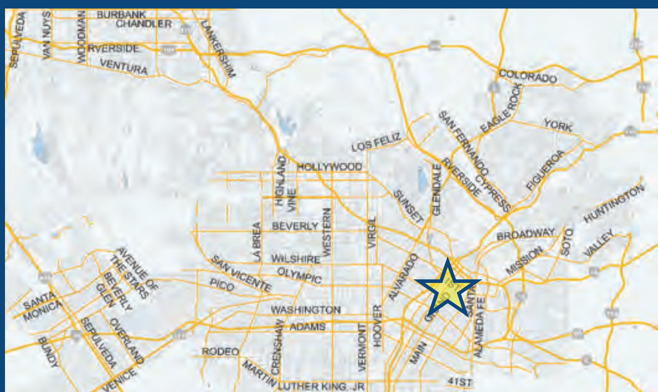
Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

Project Information

Project: ANGELS LANDING (358 S Olive St)

Scenario:

Address: 34.051352, -118.250772



If the project is replacing an existing number of residential units with a smaller number of residential units, is the proposed project located within one-half mile of a fixed-rail or fixed-guideway transit station?

○ Yes ○ No

Existing Land Use

Land Use Type	Value	Unit
Housing | Single Family		DU

☐ Click here to add a single custom land use type (will be included in the above list)

Proposed Project Land Use

Land Use Type	Value	Unit
Retail | Quality Restaurant	21.627	ksf
Housing | Multi-Family	432	DU
Housing | Hotel	515	Rooms
Retail | General Retail	28.836	ksf
Retail | High-Turnover Sit-Down Restaurant	21.627	ksf
Retail | Quality Restaurant	21.627	ksf

☐ Click here to add a single custom land use type (will be included in the above list)

Project Screening Summary

Existing Land Use	Proposed Project
0 Daily Vehicle Trips	5,410 Daily Vehicle Trips
0 Daily VMT	40,033 Daily VMT

Tier 1 Screening Criteria

Project will have less residential units compared to existing residential units & is within one-half mile of a fixed-rail station. ☐

Tier 2 Screening Criteria

The net increase in daily trips < 250 trips	5,410 Net Daily Trips
The net increase in daily VMT ≤ 0	40,033 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	72.090 ksf

The proposed project is required to perform VMT analysis.

Measuring the Miles

12/5/2019

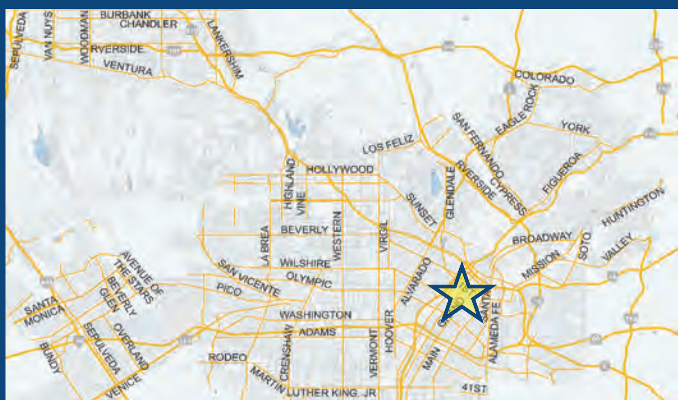
CITY OF LOS ANGELES VMT CALCULATOR Version 1.2

Project Information

Project: ANGELS LANDING (358 S Olive St)

Scenario:

Address: 34.051352, -118.250772



Proposed Project Land Use Type	Value	Unit
Housing | Multi-Family	432	DU
Housing | Hotel	515	Rooms
Retail | General Retail	28.836	ksf
Retail | High-Turnover Sit-Down Restaurant	21.627	ksf
Retail | Quality Restaurant	21.627	ksf

TDM Strategies

Select each section to show individual strategies
Use ☑ to denote if the TDM strategy is part of the proposed project or is a mitigation strategy

	Proposed Project	With Mitigation
Max Home Based TDM Achieved?	**No**	**No**
Max Work Based TDM Achieved?	**No**	**No**

A Parking

Reduce Parking Supply ☐ Proposed Prj ☐ Mitigation
- 100 city code parking provision for the project site
- 74 actual parking provision for the project site

Unbundle Parking ☐ Proposed Prj ☐ Mitigation
- 150 monthly parking cost (dollar) for the project site

Parking Cash-Out ☐ Proposed Prj ☐ Mitigation
- 50 percent of employees eligible

Price Workplace Parking ☐ Proposed Prj ☐ Mitigation
- 6.00 daily parking charge (dollar)
- 25 percent of employees subject to priced parking

Residential Area Parking Permits ☐ Proposed Prj ☐ Mitigation
- 200 cost (dollar) of annual permit

B Transit

C Education & Encouragement

D Commute Trip Reductions

E Shared Mobility

F Bicycle Infrastructure

G Neighborhood Enhancement

Analysis Results

	Proposed Project	With Mitigation
Daily Vehicle Trips	5,410	5,410
Daily VMT	40,033	40,033
Household VMT per Capita	3.9	3.9
Work VMT per Employee	7.3	7.3

Significant VMT Impact?

Proposed Project	With Mitigation
Household: No Threshold = 6.0 15% Below APC	**Household: No** Threshold = 6.0 15% Below APC
Work: No Threshold = 7.6 15% Below APC	**Work: No** Threshold = 7.6 15% Below APC

Measuring the Miles

12/5/2019

Project Information

Land Use Type		Value	Units
Housing	*Single Family*	*0*	*DU*
	Multi Family	432	DU
	Townhouse	*0*	*DU*
	Hotel	515	Rooms
	Motel	*0*	*Rooms*
Affordable Housing	*Family*	*0*	*DU*
	Senior	*0*	*DU*
	Special Needs	*0*	*DU*
	Permanent Supportive	*0*	*DU*
Retail	General Retail	28.836	ksf
	Furniture Store	*0.000*	*ksf*
	Pharmacy/Drugstore	*0.000*	*ksf*
	Supermarket	*0.000*	*ksf*
	Bank	*0.000*	*ksf*
	Health Club	*0.000*	*ksf*
	High-Turnover Sit-Down Restaurant	21.627	ksf
	Fast-Food Restaurant	*0.000*	*ksf*
	Quality Restaurant	21.627	ksf
	Auto Repair	*0.000*	*ksf*
	Home Improvement	*0.000*	*ksf*
	Free-Standing Discount	*0.000*	*ksf*
	Movie Theater	*0*	*Seats*
Office	*General Office*	*0.000*	*ksf*
	Medical Office	*0.000*	*ksf*
Industrial	*Light Industrial*	*0.000*	*ksf*
	Manufacturing	*0.000*	*ksf*
	Warehousing/Self-Storage	*0.000*	*ksf*
School	*University*	*0*	*Students*
	High School	*0*	*Students*
	Middle School	*0*	*Students*
	Elementary	*0*	*Students*
	Private School (K-12)	*0*	*Students*
Other		*0*	*Trips*

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

Analysis Results

Total Employees: 488
Total Population: 973

Proposed Project		*With Mitigation*	
5,410	**Daily Vehicle Trips**	**5,410**	**Daily Vehicle Trips**
40,033	**Daily VMT**	**40,033**	**Daily VMT**
3.9	**Household VMT per Capita**	**3.9**	**Household VMT per Capita**
7.3	**Work VMT per Employee**	**7.3**	**Work VMT per Employee**

Significant VMT Impact?

APC: Central

Impact Threshold: 15% Below APC Average
Household = 6.0
Work = 7.6

Proposed Project		*With Mitigation*	
VMT Threshold	**Impact**	**VMT Threshold**	**Impact**
Household > 6.0	No	Household > 6.0	No
Work > 7.6	No	Work > 7.6	No

TDM Strategy Inputs

Strategy Type		Description	Proposed Project	Mitigations
Parking	*Reduce parking supply*	*City code parking provision (spaces)*	*0*	*0*
		Actual parking provision (spaces)	*0*	*0*
	Unbundle parking	*Monthly cost for parking ($)*	*$0*	*$0*
	Parking cash-out	*Employees eligible (%)*	*0%*	*0%*
	Price workplace parking	*Daily parking charge ($)*	*$0.00*	*$0.00*
		Employees subject to priced parking (%)	*0%*	*0%*
	Residential area parking permits	*Cost of annual permit ($)*	*$0*	*$0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Transit	*Reduce transit headways*	*Reduction in headways (increase in frequency) (%)*	*0%*	*0%*
		Existing transit mode share (as a percent of total daily trips) (%)	*0%*	*0%*
		Lines within project site improved (<50%, >=50%)	*0*	*0*
	Implement neighborhood shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees and residents eligible (%)	*0%*	*0%*
	Transit subsidies	*Employees and residents eligible (%)*	*0%*	*0%*
		Amount of transit subsidy per passenger (daily equivalent) ($)	*$0.00*	*$0.00*
Education & Encouragement	*Voluntary travel behavior change program*	*Employees and residents participating (%)*	*0%*	*0%*
	Promotions and marketing	*Employees and residents participating (%)*	*0%*	*0%*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Commute Trip Reductions	*Required commute trip reduction program*	*Employees participating (%)*	*0%*	*0%*
	Alternative Work Schedules and Telecommute	*Employees participating (%)*	*0%*	*0%*
		Type of program	*0*	*0*
	Employer sponsored vanpool or shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees eligible (%)	*0%*	*0%*
		Employer size (small, medium, large)	*0*	*0*
	Ride-share program	*Employees eligible (%)*	*0%*	*0%*
Shared Mobility	*Car share*	*Car share project setting (Urban, Suburban, All Other)*	*0*	*0*
	Bike share	*Within 600 feet of existing bike share station - OR- implementing new bike share station (Yes/No)*	*0*	*0*
	School carpool program	*Level of implementation (Low, Medium, High)*	*0*	*0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Bicycle Infrastructure	*Implement/Improve on-street bicycle facility*	*Provide bicycle facility along site (Yes/No)*	*0*	*0*
	Include Bike parking per LAMC	*Meets City Bike Parking Code (Yes/No)*	*0*	*0*
	Include secure bike parking and showers	*Includes indoor bike parking/lockers, showers, & repair station (Yes/No)*	*0*	*0*
Neighborhood Enhancement	*Traffic calming improvements*	*Streets with traffic calming improvements (%)*	*0%*	*0%*
		Intersections with traffic calming improvements (%)	*0%*	*0%*
	Pedestrian network improvements	*Included (within project and connecting off-site/within project only)*	*0*	*0*

CITY OF LOS ANGELES VMT CALCULATOR

Report 3: TDM Outputs

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

TDM Adjustments by Trip Purpose & Strategy

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Parking	Reduce parking supply	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Parking sections 1 - 5
	Unbundle parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Parking cash-out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Price workplace parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Residential area parking permits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Transit	Reduce transit headways	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Transit sections 1 - 3
	Implement neighborhood shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Transit subsidies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Education & Encouragement	Voluntary travel behavior change program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Education & Encouragement sections 1 - 2
	Promotions and marketing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Commute Trip Reductions	Required commute trip reduction program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Commute Trip Reductions sections 1 - 4
	Alternative Work Schedules and Telecommute Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Employer sponsored vanpool or shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Ride-share program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Shared Mobility	Car-share	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Shared Mobility sections 1 - 3
	Bike share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
	School carpool program	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

TDM Adjustments by Trip Purpose & Strategy, Cont.

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Bicycle Infrastructure	Implement/ Improve on-street bicycle facility	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Bicycle Infrastructure sections 1 - 3
	Include Bike parking per LAMC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Include secure bike parking and showers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Neighborhood Enhancement	Traffic calming improvements	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Neighborhood Enhancement sections 1 - 2
	Pedestrian network improvements	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Final Combined & Maximum TDM Effect

	Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*	
	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated
COMBINED TOTAL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
MAX. TDM EFFECT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

= Minimum (X%, 1-[(1-A)*(1-B)...])
where X%=

PLACE TYPE MAX:	urban	75%
	compact infill	*40%*
	suburban center	*20%*
	suburban	*15%*

Note: (1-[(1-A)*(1-B)...]) reflects the dampened combined effectiveness of TDM Strategies (e.g., A, B,...). See the TDM Strategy Appendix (*Transportation Assessment Guidelines Attachment G)* for further discussion of dampening.

CITY OF LOS ANGELES VMT CALCULATOR

Report 4: MXD Methodology

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

MXD Methodology - Project Without TDM

	Unadjusted Trips	MXD Adjustment	MXD Trips	Average Trip Length	Unadjusted VMT	MXD VMT
Home Based Work Production	585	-40.7%	347	5.1	2,984	1,770
Home Based Other Production	1,567	-68.9%	487	4.1	6,425	1,997
Non-Home Based Other Production	1,475	-26.0%	1,091	9.0	13,275	9,819
Home-Based Work Attraction	708	-40.3%	423	8.4	5,947	3,553
Home-Based Other Attraction	5,856	-68.4%	1,851	7.2	42,163	13,327
Non-Home Based Other Attraction	1,632	-25.8%	1,211	7.9	12,893	9,567

MXD Methodology with TDM Measures

	Proposed Project			*Project with Mitigation Measures*		
	TDM Adjustment	Project Trips	Project VMT	TDM Adjustment	Mitigated Trips	Mitigated VMT
Home Based Work Production	0.0%	347	1,770	0.0%	347	1,770
Home Based Other Production	0.0%	487	1,997	0.0%	487	1,997
Non-Home Based Other Production	0.0%	1,091	9,819	0.0%	1,091	9,819
Home-Based Work Attraction	0.0%	423	3,553	0.0%	423	3,553
Home-Based Other Attraction	0.0%	1,851	13,327	0.0%	1,851	13,327
Non-Home Based Other Attraction	0.0%	1,211	9,567	0.0%	1,211	9,567

MXD VMT Methodology Per Capita & Per Employee

Total Population: 973
Total Employees: 488
APC: Central

	Proposed Project	*Project with Mitigation Measures*
Total Home Based Production VMT	**3,767**	**3,767**
Total Home Based Work Attraction VMT	**3,553**	**3,553**
Total Home Based VMT Per Capita	**3.9**	**3.9**
Total Work Based VMT Per Employee	**7.3**	**7.3**

Appendix B

Traffic Counts

Turning Movement Count Report AM

Location ID: 2
North/South: Lower Grand Ave
East/West: 4th Street

Date: 10/01/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	0	9	0	0	0	0	0	0	0	172	71	252
7:15	0	0	6	0	0	0	0	0	0	0	158	82	246
7:30	0	0	8	0	0	0	0	0	0	0	187	65	260
7:45	0	0	6	0	0	0	0	0	0	0	182	64	252
8:00	0	0	6	0	0	0	0	0	0	0	242	101	349
8:15	0	0	5	0	0	0	0	0	0	0	268	118	391
8:30	0	0	12	0	0	0	0	0	0	0	286	136	434
8:45	0	0	10	0	0	0	0	0	0	0	299	134	443
9:00	0	0	12	0	0	0	0	0	0	0	311	141	464
9:15	0	0	12	0	0	0	0	0	0	0	266	123	401
9:30	0	0	14	0	0	0	0	0	0	0	230	133	377
9:45	0	0	11	0	0	0	0	0	0	0	208	76	295

Total Volume:	0	0	111	0	0	0	0	0	0	0	2809	1244	4164
Approach %	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	69%	31%	

Peak Hr Begin:	8:30												
PHV	0	0	46	0	0	0	0	0	0	0	1162	534	1742
PHF		0.958			0.000			0.000			0.938		0.939

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 2
North/South: Lower Grand Ave
East/West: 4th Street

Date: 10/01/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	0	0	21	0	0	0	0	0	0	0	159	20	200
15:15	0	0	26	0	0	0	0	0	0	0	161	14	201
15:30	0	0	27	0	0	0	0	0	0	0	190	31	248
15:45	0	0	29	0	0	0	0	0	0	0	192	25	246
16:00	0	0	30	0	0	0	0	0	0	0	189	21	240
16:15	0	0	75	0	0	0	0	0	0	0	219	19	313
16:30	0	0	56	0	0	0	0	0	0	0	253	16	325
16:45	0	0	43	0	0	0	0	0	0	0	266	28	337
17:00	0	0	38	0	0	0	0	0	0	0	241	33	312
17:15	0	0	29	0	0	0	0	0	0	0	269	34	332
17:30	0	0	22	0	0	0	0	0	0	0	280	31	333
17:45	0	0	32	0	0	0	0	0	0	0	226	40	298

Total Volume:	0	0	428	0	0	0	0	0	0	0	2645	312	3385
Approach %	0%	0%	100%	0%	0%	0%	0%	0%	0%	0%	89%	11%	

Peak Hr Begin:	16:45												
PHV	0	0	132	0	0	0	0	0	0	0	1056	126	1314
PHF		0.767			0.000			0.000			0.950		0.975

Prepared by City Count, LLC. (www.citycount.com)

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	1	0	0	0	0	0	2	0
7:15	4	0	0	0	0	0	4	0
7:30	9	0	0	0	0	0	9	0
7:45	1	0	0	0	0	0	2	0
8:00	3	0	0	0	0	0	3	1
8:15	2	0	0	0	0	0	2	0
8:30	0	0	0	0	0	0	0	0
8:45	1	0	0	0	0	0	1	0
9:00	3	0	0	0	0	0	3	0
9:15	1	0	0	0	0	0	1	0
9:30	0	0	0	0	0	0	0	0
9:45	4	0	0	0	0	0	4	0

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
15:00	4	0	0	0	0	0	4	0
15:15	1	0	0	0	0	0	1	1
15:30	5	0	0	0	0	0	5	0
15:45	0	0	0	0	0	0	0	0
16:00	4	1	0	0	0	0	2	1
16:15	2	0	0	0	0	0	2	2
16:30	1	0	0	0	0	0	1	0
16:45	5	0	0	0	0	0	5	0
17:00	1	0	0	0	0	0	1	1
17:15	7	1	0	0	0	0	8	3
17:30	9	0	0	0	0	0	10	0
17:45	2	0	0	0	0	0	4	0

Turning Movement Count Report AM

Location ID: 1
North/South: Olive St
East/West: Kosciuszko Way

Date: 10/01/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	48	60	0	0	0	0	0	93	27	5	0	5	238
7:15	49	63	0	0	0	0	0	122	23	9	0	13	279
7:30	54	66	0	0	0	0	0	116	28	5	0	5	274
7:45	65	75	0	0	0	0	0	109	22	5	0	12	288
8:00	61	80	0	0	0	0	0	131	25	4	0	11	312
8:15	74	89	0	0	0	0	0	116	31	4	0	10	324
8:30	83	117	0	0	0	0	0	125	25	11	0	12	373
8:45	66	104	1	0	0	0	0	82	33	4	0	13	303
9:00	84	87	1	0	0	0	0	88	36	7	0	13	316
9:15	71	86	1	0	0	0	0	108	34	5	0	17	322
9:30	69	84	0	0	0	0	0	100	20	1	0	16	290
9:45	43	71	1	0	0	0	0	91	25	3	0	6	240

Total Volume:	767	982	4	0	0	0	0	1281	329	63	0	133	3559
Approach %	44%	56%	0%	0%	0%	0%	0%	80%	20%	32%	0%	68%	

Peak Hr Begin:	8:15												
PHV	307	397	2	0	0	0	0	411	125	26	0	48	1316
PHF	0.883			0.000			0.893			0.804			0.882

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 1
North/South: Olive St
East/West: Kosciuszko Way

Date: 10/01/19
City: Los Angeles, CA

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	11	17	1	0	0	0	0	166	24	11	0	26	256
15:15	20	20	1	0	0	0	0	183	22	9	0	14	269
15:30	27	29	0	0	0	0	0	207	14	22	0	35	334
15:45	29	16	0	0	0	0	0	203	22	13	0	34	317
16:00	14	36	0	0	0	0	0	197	14	20	0	51	332
16:15	13	28	0	0	0	0	0	198	22	34	0	48	343
16:30	14	18	0	0	0	0	0	214	26	28	0	64	364
16:45	13	26	0	0	0	0	0	226	11	19	0	46	341
17:00	23	30	0	0	0	0	0	247	7	10	0	94	411
17:15	11	33	0	0	0	0	0	244	21	14	0	55	378
17:30	23	21	0	0	0	0	0	254	26	9	0	54	387
17:45	20	14	0	0	0	0	0	250	30	13	0	41	368

Total Volume:	218	288	2	0	0	0	0	2589	239	202	0	562	4100
Approach %	43%	57%	0%	0%	0%	0%	0%	92%	8%	26%	0%	74%	

Peak Hr Begin:	17:00												
PHV	77	98	0	0	0	0	0	995	84	46	0	244	1544
PHF	0.825			0.000			0.963			0.697			0.939

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	0	1	0	0	14	0	5	0
7:15	1	0	0	0	9	0	8	0
7:30	9	0	0	0	7	0	6	0
7:45	3	0	0	0	9	0	7	0
8:00	6	0	0	0	12	0	12	0
8:15	10	0	0	0	11	0	13	0
8:30	5	0	0	0	9	0	8	0
8:45	8	0	0	0	20	0	9	0
9:00	3	0	0	0	15	0	11	0
9:15	7	0	0	0	9	0	17	1
9:30	0	0	0	0	14	0	4	0
9:45	6	0	0	0	9	1	7	1

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
15:00	3	0	0	0	8	0	10	0
15:15	6	0	0	0	13	0	4	1
15:30	0	0	0	0	8	0	9	0
15:45	6	0	0	0	10	0	4	0
16:00	4	1	0	0	13	0	13	0
16:15	10	0	0	0	17	1	10	2
16:30	9	0	0	0	16	0	17	0
16:45	5	0	0	0	30	0	15	0
17:00	12	0	0	0	33	0	25	0
17:15	10	0	0	0	24	0	15	0
17:30	10	0	0	0	24	0	13	0
17:45	5	0	0	0	21	0	10	1

Turning Movement Count Report AM

Location ID: 1
North/South: Olive Street
East/West: 2nd Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	6	61	0	7	21	24	0	94	25	13	0	4	255
7:15	2	47	0	9	23	45	0	117	26	14	0	2	285
7:30	2	58	0	9	22	35	0	115	25	16	0	3	285
7:45	4	64	0	8	26	42	0	151	27	18	0	3	343
8:00	2	56	0	10	21	55	0	122	22	24	0	4	316
8:15	5	79	0	13	18	57	0	116	16	31	0	4	339
8:30	7	90	1	10	25	57	1	101	20	21	0	3	336
8:45	3	92	0	16	31	43	0	118	26	22	0	3	354
9:00	3	74	0	19	22	46	0	109	13	23	0	2	311
9:15	3	114	0	17	18	43	0	95	7	27	0	6	330
9:30	3	57	0	10	20	31	0	93	10	21	0	3	248
9:45	5	77	0	18	18	27	0	99	16	25	0	3	288

Total Volume:	45	869	1	146	265	505	1	1330	233	255	0	40	3690
Approach %	5%	95%	0%	16%	29%	55%	0%	85%	15%	86%	0%	14%	

Peak Hr Begin:	8:00												
PHV	17	317	1	49	95	212	1	457	84	98	0	14	1345
PHF	0.855			0.967			0.941			0.800			0.950

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 1
North/South: Olive Street
East/West: 2nd Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	0	18	0	4	8	10	0	206	28	10	0	3	287
15:15	2	25	0	6	10	13	0	227	26	10	0	8	327
15:30	0	30	0	5	9	13	0	250	26	24	0	10	367
15:45	1	29	0	7	11	9	0	271	40	24	0	6	398
16:00	1	23	0	3	15	8	0	296	29	22	0	6	403
16:15	1	21	0	6	16	12	0	306	38	20	0	17	437
16:30	5	15	0	6	11	14	0	310	49	22	0	9	441
16:45	1	36	0	4	25	11	0	303	59	21	0	15	475
17:00	3	30	0	2	19	11	0	291	47	12	0	8	423
17:15	1	33	0	6	16	21	0	316	58	20	0	23	494
17:30	3	23	0	4	12	12	0	342	44	15	0	21	476
17:45	5	29	0	5	12	18	0	396	34	16	0	13	528
Total Volume:	23	312	0	58	164	152	0	3514	478	216	0	139	5056
Approach %	7%	93%	0%	16%	44%	41%	0%	88%	12%	61%	0%	39%	

Peak Hr Begin:	17:00												
PHV	12	115	0	17	59	62	0	1345	183	63	0	65	1921
PHF	0.934			0.802			0.888			0.744			0.910

Prepared by City Count, LLC. (www.citycount.com)

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	1	0	22	0	15	0	1	0
7:15	0	0	16	0	10	0	0	0
7:30	1	0	29	0	29	0	0	0
7:45	0	0	43	0	13	0	1	0
8:00	0	0	46	0	22	0	0	0
8:15	1	0	38	0	17	0	2	0
8:30	0	0	34	0	17	1	0	0
8:45	2	0	30	0	16	0	3	0
9:00	0	0	47	0	31	0	0	0
9:15	1	0	26	0	21	0	1	0
9:30	0	0	34	0	25	0	0	0
9:45	0	0	20	0	9	0	0	0

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
15:00	0	0	48	0	47	0	0	0
15:15	0	0	49	0	43	0	0	0
15:30	1	0	68	0	62	0	1	0
15:45	0	0	51	0	53	0	1	0
16:00	0	0	42	0	51	1	0	0
16:15	3	0	76	0	68	0	1	0
16:30	0	0	59	0	51	1	0	0
16:45	0	0	48	0	24	0	0	0
17:00	1	0	57	0	54	0	1	0
17:15	0	0	36	0	46	0	1	0
17:30	0	0	55	0	61	0	0	0
17:45	0	0	29	0	49	0	0	0

Turning Movement Count Report AM

Location ID: 3
North/South: Hill Street
East/West: 3rd Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	69	172	0	16	374	20	0	66	11	0	0	0	728
7:15	85	166	0	29	324	14	0	95	6	0	0	0	719
7:30	86	182	0	26	331	17	0	88	12	0	0	0	742
7:45	70	205	0	26	367	26	0	91	19	0	0	0	804
8:00	68	189	0	21	325	29	0	90	12	0	0	0	734
8:15	64	159	0	18	313	28	0	93	11	0	0	0	686
8:30	76	226	0	16	339	25	0	93	14	0	0	0	789
8:45	63	234	0	17	317	31	0	72	17	0	0	0	751
9:00	68	226	0	21	313	30	0	64	17	0	0	0	739
9:15	102	199	0	18	312	29	0	65	11	0	0	0	736
9:30	96	206	0	28	290	30	0	54	17	0	0	0	721
9:45	63	231	0	18	266	42	0	72	12	0	0	0	704

Total Volume:	910	2395	0	254	3871	321	0	943	159	0	0	0	8853
Approach %	28%	72%	0%	6%	87%	7%	0%	86%	14%	0%	0%	0%	

Peak Hr Begin:	8:30												
PHV	309	885	0	72	1281	115	0	294	59	0	0	0	3015
PHF		0.988			0.966			0.825			0.000		0.955

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 3
North/South: Hill Street
East/West: 3rd Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	23	93	0	29	220	30	0	91	16	0	0	0	502
15:15	35	127	0	29	242	35	0	99	17	0	0	0	584
15:30	53	128	0	24	270	33	0	94	31	0	0	0	633
15:45	46	181	0	27	248	29	0	128	17	0	0	0	676
16:00	73	193	0	26	241	31	0	120	19	0	0	0	703
16:15	67	196	0	37	244	29	0	114	18	0	0	0	705
16:30	74	228	0	38	258	29	0	142	12	0	0	0	781
16:45	59	217	0	33	180	28	0	117	16	0	0	0	650
17:00	62	209	0	39	158	43	0	115	17	0	0	0	643
17:15	39	214	0	27	228	24	0	151	7	0	0	0	690
17:30	47	202	0	49	252	14	0	170	11	0	0	0	745
17:45	58	172	0	31	240	28	0	175	26	0	0	0	730

Total Volume:	636	2160	0	389	2781	353	0	1516	207	0	0	0	8042
Approach %	23%	77%	0%	11%	79%	10%	0%	88%	12%	0%	0%	0%	

Peak Hr Begin:	15:45												
PHV	260	798	0	128	991	118	0	504	66	0	0	0	2865
PHF	0.876			0.952			0.925			0.000			0.917

Prepared by City Count, LLC. (www.citycount.com)

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	15	0	15	0	6	3	8	0
7:15	13	0	18	0	8	1	9	1
7:30	11	2	23	0	7	0	11	0
7:45	14	0	38	0	10	1	15	0
8:00	14	0	26	1	18	1	13	2
8:15	24	0	33	2	12	1	21	1
8:30	19	0	23	0	7	1	18	1
8:45	24	0	29	3	10	0	19	0
9:00	28	0	37	1	10	1	13	0
9:15	17	0	23	1	12	0	18	0
9:30	26	0	25	2	8	0	21	0
9:45	25	0	44	0	7	0	23	0

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
15:00	20	1	53	4	20	0	22	0
15:15	25	0	38	2	30	0	26	0
15:30	9	0	27	2	10	1	24	0
15:45	8	0	43	1	18	1	21	1
16:00	22	1	31	1	16	2	32	0
16:15	15	0	53	0	15	2	24	1
16:30	17	1	50	1	27	0	28	2
16:45	8	2	46	2	15	1	30	0
17:00	10	1	46	0	18	1	19	1
17:15	12	1	31	1	14	0	22	0
17:30	17	0	48	1	9	0	34	1
17:45	20	0	39	3	12	1	22	0

Turning Movement Count Report AM

Location ID: 4
North/South: Broadway
East/West: 3rd Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	43	53	0	6	345	3	0	74	18	0	0	0	542
7:15	33	43	0	11	312	0	0	98	18	0	0	0	515
7:30	54	60	0	10	304	5	0	89	27	0	0	0	549
7:45	65	63	0	13	314	1	0	81	27	0	0	0	564
8:00	50	51	0	14	294	6	0	92	25	0	0	0	532
8:15	50	66	0	13	286	4	0	95	14	0	0	0	528
8:30	53	69	0	10	306	2	0	87	17	0	0	0	544
8:45	58	66	0	14	263	9	0	99	28	0	0	0	537
9:00	51	66	0	16	294	5	0	96	15	0	0	0	543
9:15	63	68	0	19	264	5	0	86	19	0	0	0	524
9:30	56	71	0	22	273	5	0	92	13	0	0	0	532
9:45	54	101	0	10	249	7	0	78	8	0	0	0	507
Total Volume:	630	777	0	158	3504	52	0	1067	229	0	0	0	6417
Approach %	45%	55%	0%	4%	94%	1%	0%	82%	18%	0%	0%	0%	

Peak Hr Begin:	7:30												
PHV	219	240	0	50	1198	16	0	357	93	0	0	0	2173
PHF	0.896			0.963			0.962			0.000			0.963

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 4
North/South: Broadway
East/West: 3rd Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	20	33	0	32	225	20	0	135	11	0	0	0	476
15:15	23	56	0	28	249	11	0	139	22	0	0	0	528
15:30	24	62	0	36	257	12	0	111	18	0	0	0	520
15:45	32	64	0	33	236	6	0	124	19	0	0	0	514
16:00	26	58	0	34	242	10	0	131	15	0	0	0	516
16:15	25	73	0	53	245	14	0	167	24	0	0	0	601
16:30	34	75	0	35	251	8	0	190	22	0	0	0	615
16:45	29	83	0	25	198	16	0	177	15	0	0	0	543
17:00	23	83	0	40	171	13	0	196	17	0	0	0	543
17:15	22	66	0	54	214	10	0	218	11	0	0	0	595
17:30	30	56	0	34	254	4	0	164	24	0	0	0	566
17:45	20	62	0	28	234	11	0	201	18	0	0	0	574

Total Volume:	308	771	0	432	2776	135	0	1953	216	0	0	0	6591
Approach %	29%	71%	0%	13%	83%	4%	0%	90%	10%	0%	0%	0%	

Peak Hr Begin:	16:15												
PHV	111	314	0	153	865	51	0	730	78	0	0	0	2302
PHF	0.949			0.857			0.948			0.000			0.936

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*
7:00	12	1	11	1	8	2	21	0
7:15	19	0	14	0	9	0	17	1
7:30	22	1	18	0	9	1	14	0
7:45	11	0	27	0	14	0	18	0
8:00	24	2	18	0	20	1	28	2
8:15	22	0	16	0	12	1	28	3
8:30	9	0	19	0	12	1	31	0
8:45	31	1	36	0	16	2	26	1
9:00	29	0	37	0	14	1	23	2
9:15	17	0	33	0	17	1	37	1
9:30	35	0	34	0	19	0	43	0
9:45	26	1	32	1	22	0	44	1

Leg:	North		East		South		West	
Class:	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*
15:00	27	0	40	2	28	0	55	0
15:15	21	0	63	0	50	0	47	0
15:30	28	0	31	3	34	4	46	2
15:45	16	4	39	1	21	0	56	1
16:00	28	4	40	1	30	1	38	4
16:15	33	1	57	1	27	2	35	2
16:30	35	1	41	0	29	1	55	2
16:45	27	1	44	0	21	1	45	0
17:00	24	0	26	1	18	1	43	1
17:15	16	0	29	2	24	1	30	2
17:30	7	0	31	0	17	1	44	0
17:45	16	1	26	1	19	3	35	0

Turning Movement Count Report AM

Location ID: 6
North/South: Olive Street
East/West: 4th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	32	9	0	0	0	11	100	0	19	125	30	326
7:15	0	27	5	0	0	0	18	134	0	14	114	23	335
7:30	0	25	10	0	0	0	25	158	0	22	149	24	413
7:45	0	29	7	0	0	0	17	150	0	26	169	43	441
8:00	0	35	9	0	0	0	23	130	0	47	177	47	468
8:15	0	51	15	0	0	0	30	119	0	39	150	38	442
8:30	0	54	9	0	0	0	22	107	0	36	208	38	474
8:45	0	46	10	0	0	0	17	138	0	45	170	39	465
9:00	0	50	4	0	0	0	21	123	0	44	172	29	443
9:15	0	39	13	0	0	0	13	87	0	49	149	32	382
9:30	0	37	10	0	0	0	13	108	0	35	134	33	370
9:45	0	43	18	0	0	0	12	79	0	44	150	43	389

Total Volume:	0	468	119	0	0	0	222	1433	0	420	1867	419	4948
Approach %	0%	80%	20%	0%	0%	0%	13%	87%	0%	16%	69%	15%	

Peak Hr Begin:	8:00												
PHV	0	186	43	0	0	0	92	494	0	167	705	162	1849
PHF		0.867			0.000			0.945			0.917		0.975

Turning Movement Count Report PM

Location ID: 6
North/South: Olive Street
East/West: 4th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	0	37	13	0	0	0	38	179	0	22	144	39	472
15:15	0	34	15	0	0	0	48	181	0	30	189	55	552
15:30	0	47	23	0	0	0	38	214	0	37	202	51	612
15:45	0	33	26	0	0	0	29	223	0	22	197	54	584
16:00	0	42	16	0	0	0	37	239	0	29	224	33	620
16:15	0	49	17	0	0	0	26	280	0	28	201	50	651
16:30	0	44	21	0	0	0	26	276	0	17	227	43	654
16:45	0	51	24	0	0	0	28	257	0	20	206	27	613
17:00	0	39	24	0	0	0	56	264	0	40	249	31	703
17:15	0	38	24	0	0	0	65	257	0	32	214	50	680
17:30	0	32	16	0	0	0	41	269	0	9	212	40	619
17:45	0	40	19	0	0	0	44	301	0	24	240	64	732

Total Volume:	0	486	238	0	0	0	476	2940	0	310	2505	537	7492
Approach %	0%	67%	33%	0%	0%	0%	14%	86%	0%	9%	75%	16%	

Peak Hr Begin:	17:00												
PHV	0	149	83	0	0	0	206	1091	0	105	915	185	2734
PHF		0.921			0.000			0.940			0.918		0.934

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	81	0	10	0	10	0	14	0
7:15	59	0	20	0	9	0	13	0
7:30	87	0	13	0	16	0	15	1
7:45	121	0	16	0	13	0	15	1
8:00	68	0	16	0	15	0	15	0
8:15	108	0	24	0	22	0	20	0
8:30	83	0	11	0	15	0	22	0
8:45	79	0	11	0	5	0	20	0
9:00	74	0	12	0	6	0	17	0
9:15	61	0	21	0	6	0	18	0
9:30	53	0	12	0	7	0	9	0
9:45	45	0	20	0	15	0	21	0

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
15:00	35	0	20	0	9	0	16	0
15:15	21	0	11	0	8	0	11	0
15:30	33	0	10	0	12	0	22	0
15:45	29	1	18	0	18	0	16	1
16:00	61	0	13	0	19	0	20	0
16:15	42	0	10	0	13	0	12	1
16:30	51	0	19	0	18	0	27	2
16:45	69	0	12	0	8	0	32	0
17:00	96	0	23	0	17	0	20	0
17:15	54	0	22	0	24	0	36	0
17:30	58	0	16	0	11	0	15	0
17:45	41	0	19	0	10	0	19	0

Turning Movement Count Report AM

Location ID: 7
North/South: Hill Street
East/West: 4th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	175	17	0	0	0	10	65	0	27	101	15	410
7:15	0	155	13	0	0	0	11	82	0	15	99	27	402
7:30	0	182	16	0	0	0	11	84	0	35	132	22	482
7:45	0	196	22	0	0	0	14	79	0	29	133	36	509
8:00	0	188	24	0	0	0	15	70	0	32	136	43	508
8:15	0	167	14	0	0	0	18	81	0	30	151	23	484
8:30	0	227	19	0	0	0	19	84	0	45	176	26	596
8:45	0	234	26	0	0	0	26	78	0	39	137	23	563
9:00	0	229	19	0	0	0	15	60	0	39	146	21	529
9:15	0	190	24	0	0	0	15	60	0	37	116	25	467
9:30	0	211	26	0	0	0	15	54	0	30	104	24	464
9:45	0	231	26	0	0	0	16	63	0	32	124	24	516

Total Volume:	0	2385	246	0	0	0	185	860	0	390	1555	309	5930
Approach %	0%	91%	9%	0%	0%	0%	18%	82%	0%	17%	69%	14%	

Peak Hr Begin:	8:15												
PHV	0	857	78	0	0	0	78	303	0	153	610	93	2172
PHF		0.899			0.000			0.916			0.866		0.911

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 7
North/South: Hill Street
East/West: 4th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	0	109	15	0	0	0	17	84	0	43	139	22	429
15:15	0	142	15	0	0	0	23	98	0	48	179	24	529
15:30	0	133	17	0	0	0	21	90	0	40	194	30	525
15:45	0	184	16	0	0	0	17	114	0	47	188	27	593
16:00	0	208	28	0	0	0	24	120	0	33	223	18	654
16:15	0	207	22	0	0	0	23	126	0	26	229	6	639
16:30	0	211	33	0	0	0	28	133	0	25	244	8	682
16:45	0	220	33	0	0	0	26	129	0	45	229	10	692
17:00	0	209	26	0	0	0	26	134	0	48	280	9	732
17:15	0	205	26	0	0	0	32	128	0	39	258	14	702
17:30	0	175	22	0	0	0	14	220	0	29	220	13	693
17:45	0	171	25	0	0	0	23	170	0	27	254	16	686
Total Volume:	0	2174	278	0	0	0	274	1546	0	450	2637	197	7556
Approach %	0%	89%	11%	0%	0%	0%	15%	85%	0%	14%	80%	6%	

Peak Hr Begin:	16:45												
PHV	0	809	107	0	0	0	98	611	0	161	987	46	2819
PHF		0.905			0.000			0.757			0.886		0.963

Prepared by City Count, LLC. (www.citycount.com)

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	15	0	13	0	3	0	16	0
7:15	12	0	17	0	5	0	15	0
7:30	13	1	33	0	5	0	24	0
7:45	17	1	40	0	9	0	19	0
8:00	8	0	33	1	14	0	21	0
8:15	19	0	53	0	11	0	20	1
8:30	28	0	36	0	7	0	22	1
8:45	16	0	55	2	9	0	23	1
9:00	25	0	46	0	4	0	27	0
9:15	26	2	41	0	10	0	17	2
9:30	25	0	41	1	6	0	34	0
9:45	17	0	44	0	7	0	21	1

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
15:00	28	0	65	0	17	0	31	0
15:15	27	0	58	0	5	0	32	2
15:30	29	1	59	0	8	1	36	2
15:45	14	1	58	0	8	0	28	1
16:00	25	0	54	0	14	0	22	0
16:15	33	0	54	0	11	0	34	0
16:30	23	2	62	0	19	0	35	0
16:45	26	0	56	0	12	0	20	1
17:00	44	0	60	0	15	0	37	0
17:15	21	0	44	0	18	0	23	0
17:30	25	1	33	0	18	0	33	1
17:45	17	0	33	0	18	0	31	1

Turning Movement Count Report AM

Location ID: 8
North/South: Broadway
East/West: 4th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	52	0	0	0	0	11	79	0	6	94	25	267
7:15	0	44	0	0	0	0	7	92	0	10	102	18	273
7:30	0	61	1	0	0	0	8	103	0	12	126	20	331
7:45	1	62	0	0	0	0	4	98	0	8	132	19	324
8:00	0	52	0	0	0	0	8	101	0	18	120	32	331
8:15	0	67	0	0	0	0	11	102	0	13	133	17	343
8:30	0	65	0	0	0	0	13	98	0	15	147	30	368
8:45	0	76	0	0	0	0	8	113	0	19	129	25	370
9:00	0	63	1	0	0	0	10	95	0	13	121	35	338
9:15	0	71	1	0	0	0	15	89	0	20	109	25	330
9:30	0	68	1	0	0	0	13	100	0	16	107	12	317
9:45	0	96	6	0	0	0	16	69	0	23	107	34	351

Total Volume:	1	777	10	0	0	0	124	1139	0	173	1427	292	3943
Approach %	0%	99%	1%	0%	0%	0%	10%	90%	0%	9%	75%	15%	

Peak Hr Begin:	8:15												
PHV	0	271	1	0	0	0	42	408	0	60	530	107	1419
PHF	0.895			0.000			0.930			0.908			0.959

Turning Movement Count Report PM

Location ID: 8
North/South: Broadway
East/West: 4th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	0	55	1	0	0	0	15	137	0	11	141	21	381
15:15	0	68	1	0	0	0	22	127	0	13	180	26	437
15:30	0	73	0	0	0	0	22	112	0	24	181	24	436
15:45	0	73	0	0	0	0	20	115	0	17	184	34	443
16:00	0	63	0	0	0	0	20	126	0	25	231	21	486
16:15	0	83	0	0	0	0	16	168	0	16	258	27	568
16:30	0	84	1	0	0	0	20	191	0	25	250	30	601
16:45	0	100	1	0	0	0	9	170	0	19	249	35	583
17:00	0	85	1	0	0	0	15	180	0	23	274	40	618
17:15	0	70	0	0	0	0	21	183	0	25	250	53	602
17:30	1	60	0	0	0	0	24	166	0	14	239	29	533
17:45	0	72	0	0	0	0	17	181	0	13	244	37	564
Total Volume:	1	886	5	0	0	0	221	1856	0	225	2681	377	6252
Approach %	0%	99%	1%	0%	0%	0%	11%	89%	0%	7%	82%	11%	

Peak Hr Begin:	16:30												
PHV	0	339	3	0	0	0	65	724	0	92	1023	158	2404
PHF	0.847			0.000			0.935			0.944			0.972

Prepared by City Count, LLC. (www.citycount.com)

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*
7:00	34	0	16	0	15	1	31	0
7:15	36	0	18	0	20	0	26	0
7:30	51	0	9	0	18	0	29	0
7:45	47	1	12	0	15	1	25	0
8:00	37	1	17	0	17	0	39	0
8:15	44	1	13	0	27	1	32	1
8:30	49	0	22	0	37	0	45	2
8:45	47	1	27	1	28	0	40	5
9:00	52	0	18	0	21	0	50	1
9:15	49	0	29	0	24	0	47	2
9:30	44	1	23	0	12	0	46	0
9:45	24	0	30	0	26	0	52	2

Leg:	North		East		South		West	
Class:	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*
15:00	47	0	30	1	30	0	88	2
15:15	64	0	73	0	39	1	82	1
15:30	56	0	56	1	33	3	76	1
15:45	56	1	31	0	28	0	84	1
16:00	64	2	41	0	42	2	86	2
16:15	75	0	49	2	34	0	83	2
16:30	60	3	36	0	36	0	81	3
16:45	80	0	47	1	40	0	77	0
17:00	86	0	43	0	39	3	72	3
17:15	66	2	51	0	26	2	64	1
17:30	50	1	36	0	21	0	68	0
17:45	44	0	36	0	28	0	68	1

Turning Movement Count Report AM

Location ID: 9
North/South: Olive Street
East/West: 5th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	28	0	0	25	309	0	0	111	80	0	0	0	553
7:15	30	0	0	23	269	0	0	142	110	0	0	0	574
7:30	30	0	0	29	276	0	0	163	82	0	0	0	580
7:45	42	0	0	23	275	0	0	166	110	0	0	0	616
8:00	48	0	0	17	278	0	0	149	99	0	0	0	591
8:15	52	0	0	14	239	0	0	153	100	0	0	0	558
8:30	60	0	0	21	206	0	0	135	108	0	0	0	530
8:45	59	0	0	20	244	0	0	142	90	0	0	0	555
9:00	59	0	0	20	204	0	0	146	105	0	0	0	534
9:15	70	0	0	16	177	0	0	114	102	0	0	0	479
9:30	43	0	0	17	176	0	0	99	92	0	0	0	427
9:45	68	0	0	14	176	0	0	89	97	0	0	0	444

Total Volume:	589	0	0	239	2829	0	0	1609	1175	0	0	0	6441
Approach %	100%	0%	0%	8%	92%	0%	0%	58%	42%	0%	0%	0%	

Peak Hr Begin:	7:15												
PHV	150	0	0	92	1098	0	0	620	401	0	0	0	2361
PHF	0.781			0.975			0.925			0.000			0.958

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 9
North/South: Olive Street
East/West: 5th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	80	0	0	12	161	0	0	180	95	0	0	0	528
15:15	79	0	0	13	185	0	0	198	106	0	0	0	581
15:30	85	0	0	23	158	0	0	193	91	0	0	0	550
15:45	74	0	0	17	139	0	0	221	124	0	0	0	575
16:00	84	0	0	21	148	0	0	224	107	0	0	0	584
16:15	90	0	0	17	141	0	0	258	107	0	0	0	613
16:30	82	0	0	21	181	0	0	264	112	0	0	0	660
16:45	86	0	0	11	167	0	0	263	117	0	0	0	644
17:00	101	0	0	28	222	0	0	279	128	0	0	0	758
17:15	81	0	0	16	239	0	0	290	137	0	0	0	763
17:30	88	0	0	17	191	0	0	260	138	0	0	0	694
17:45	89	0	0	27	213	0	0	317	121	0	0	0	767

Total Volume:	1019	0	0	223	2145	0	0	2947	1383	0	0	0	7717
Approach %	100%	0%	0%	9%	91%	0%	0%	68%	32%	0%	0%	0%	

Peak Hr Begin:	17:00												
PHV	359	0	0	88	865	0	0	1146	524	0	0	0	2982
PHF	0.889			0.934			0.953			0.000			0.972

Prepared by City Count, LLC. (www.citycount.com)

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
7:00	85	0	30	0	52	0	31	0
7:15	102	0	19	0	58	1	39	0
7:30	72	1	30	0	57	3	42	2
7:45	87	0	29	0	89	1	55	0
8:00	81	2	17	0	75	0	49	1
8:15	150	0	43	0	92	0	77	2
8:30	125	0	32	0	106	1	92	0
8:45	131	0	51	0	110	0	97	0
9:00	107	1	31	1	110	1	49	0
9:15	104	1	35	0	50	0	67	0
9:30	108	1	32	1	94	0	53	0
9:45	83	0	13	0	85	0	47	0

Leg:	North		East		South		West	
Class:	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle	Peds	Bicycle
15:00	113	2	66	1	99	1	54	1
15:15	82	1	47	0	89	0	32	0
15:30	114	1	37	0	88	0	52	0
15:45	113	2	37	0	124	0	58	1
16:00	119	0	48	0	148	1	38	3
16:15	135	1	52	2	101	0	39	1
16:30	124	0	55	0	143	0	54	0
16:45	143	0	64	0	119	0	47	0
17:00	134	1	76	0	166	1	48	1
17:15	117	0	57	1	102	0	44	3
17:30	117	0	72	0	123	2	27	0
17:45	93	0	55	1	122	0	41	0

Turning Movement Count Report AM

Location ID: 10
North/South: Hill Street
East/West: 5th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	36	163	0	11	272	9	0	70	16	0	0	0	577
7:15	36	134	0	15	262	10	0	83	13	0	0	0	553
7:30	37	178	0	28	256	10	0	71	13	0	0	0	593
7:45	43	179	0	19	263	13	0	70	11	0	0	0	598
8:00	48	170	0	26	253	21	0	64	14	0	0	0	596
8:15	40	151	0	22	223	18	0	78	21	0	0	0	553
8:30	57	190	0	23	181	10	0	80	14	0	0	0	555
8:45	57	225	0	34	223	14	0	77	17	0	0	0	647
9:00	59	194	0	13	183	24	0	57	17	0	0	0	547
9:15	60	160	0	17	142	18	0	60	12	0	0	0	469
9:30	57	173	0	20	165	21	0	47	14	0	0	0	497
9:45	64	182	0	22	159	23	0	55	14	0	0	0	519

Total Volume:	594	2099	0	250	2582	191	0	812	176	0	0	0	6704
Approach %	22%	78%	0%	8%	85%	6%	0%	82%	18%	0%	0%	0%	

Peak Hr Begin:	8:00												
PHV	202	736	0	105	880	63	0	299	66	0	0	0	2351
PHF		0.832			0.873			0.922			0.000		0.908

Prepared by City Count, LLC. (www.citycount.com)

Turning Movement Count Report PM

Location ID: 10
North/South: Hill Street
East/West: 5th Street

Date: 11/21/19
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
15:00	35	124	0	25	99	13	0	74	19	0	0	0	389
15:15	41	138	0	20	122	8	0	91	19	0	0	0	439
15:30	46	139	0	11	103	17	0	97	25	0	0	0	438
15:45	34	192	0	17	89	17	1	92	25	0	0	0	467
16:00	25	213	0	24	101	12	0	113	19	0	0	0	507
16:15	32	194	0	23	100	16	0	112	20	0	0	0	497
16:30	36	201	0	28	112	10	0	125	16	0	0	0	528
16:45	30	226	0	25	114	15	0	123	15	0	0	0	548
17:00	34	204	0	22	179	22	0	129	27	0	0	0	617
17:15	33	201	0	24	183	21	0	136	21	0	0	0	619
17:30	33	185	0	46	146	24	0	181	16	0	0	0	631
17:45	22	173	0	34	159	13	0	150	23	0	0	0	574

Total Volume:	401	2190	0	299	1507	188	1	1423	245	0	0	0	6254
Approach %	15%	85%	0%	15%	76%	9%	0%	85%	15%	0%	0%	0%	

Peak Hr Begin:	17:00												
PHV	122	763	0	126	667	80	0	596	87	0	0	0	2441
PHF	0.930			0.957			0.867			0.000			0.967

Pedestrian/Bicycle Count Report

Leg:	North		East		South		West	
Class:	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*
7:00	71	1	65	1	121	1	69	1
7:15	104	0	68	1	93	1	84	0
7:30	101	1	80	0	115	0	85	0
7:45	114	1	109	1	161	1	98	1
8:00	89	0	72	2	150	0	102	0
8:15	140	1	125	1	184	1	88	1
8:30	127	1	101	0	154	0	131	0
8:45	116	2	104	0	151	2	121	1
9:00	91	2	87	0	145	1	101	0
9:15	102	0	79	0	115	1	77	0
9:30	98	0	62	1	120	1	84	0
9:45	106	3	91	0	107	2	67	0

Leg:	North		East		South		West	
Class:	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*	*Peds*	*Bicycle*
15:00	92	3	75	2	117	2	68	0
15:15	97	1	70	0	146	0	75	1
15:30	113	1	78	1	127	3	84	1
15:45	94	2	85	0	160	0	82	0
16:00	103	5	88	2	190	1	88	1
16:15	111	1	73	1	158	5	105	2
16:30	91	0	87	0	221	2	98	0
16:45	112	1	86	2	177	2	88	0
17:00	114	1	86	2	219	1	97	1
17:15	116	1	85	1	151	1	101	2
17:30	102	0	71	0	150	4	103	0
17:45	90	1	91	2	166	1	107	1

Appendix C

Threshold T-1 Evaluation Tables

TABLE C-1
QUESTIONS TO DETERMINE PROJECT APPLICABILITY TO PLANS, POLICIES, AND PROGRAMS

No.	Guiding Question	Relevant Plans, Policies, and Programs	Supporting/Complementary City Plans, Policies, and Programs to Consult	Project Response
Existing Plan Applicability				
1.	Does the project include additions or new construction along a street designated as a Boulevard I or II, and/or Avenue I, II, or III, on property zoned for R3 or less restrictive zone?	LAMC Section 12.37		Yes
2.	Is the project site along any Network identified in Mobility Plan 2035?	MP - 2.3 through 2.7		Yes
3.	Are dedications or improvements needed to serve long-term mobility needs as identified Mobility Plan 2035?	MP - Street Classifications; MP - Street Designations and Standard Roadway Dimensions	MP - 2.17 Street Widenings	Yes
4.	Does the project require placement of transit furniture in accordance with City's Coordinated Street Furniture and Bus Bench Program?			No
5.	Is the project site in an identified Transit Oriented Community?	MP - TEN; MP - PED; MP - BEN; TOC Guidelines		Yes
6.	Is the project site on a roadway identified in the City's High-Injury Network?	Vision Zero	Mobility Plan 2035	No
7.	Does the project propose repurposing existing curb space? (Bike corral, car-sharing, parklet, electric vehicle charging, loading zone, curb extension, etc.)	MP - 2.1 Adaptive Reuse of Streets; MP - 2.10 Loading Areas; MP - 3.5 Multi-Modal Features; MP - 3.8 Bicycle Parking; MP - 4.13 Parking and Land Use Management; MP - 5.4 Clean Fuels and Vehicles	MP - 2.3 Pedestrian Infrastructure; MP - 2-4 Neighborhood Enhanced Network; MP - 3.2 People with Disabilities; MP - 4.1 New Technologies; MP - 5.1 Sustainable Transportation; MP - 5.5 Green Streets	No
8.	Does the project propose narrowing or shifting existing sidewalk placement?	MP - 2.3 Pedestrian Infrastructurel; MP - 3.1 Access for All; MP - PED; MP - ENG.19; MP - 2.17 Street Widenings	Healthy LA; Vision Zero; Sustainability pLAn	No
9.	Does the project propose paving, narrowing, shifting, or removing an existing parkway?	MP - 5.5 Green Streets, Sustainability pLAn		No
10.	Does the project propose modifying, removing, or otherwise affect existing bicycle infrastructure? (ex: driveway proposed along street with bicycle facility)	MP - BEN; MP - 4.15 Public Hearing Process	Vision Zero	No
11.	Is the project site adjacent to an alley? If yes, will project make use of, modify, or restrict alley access?	MP - 3.9 Increased Network Access; MP - ENG.9; MP - PL.1; MP - PL.13; MP - PS.3		No
12.	Does project create a cul-de-sac or is the project site located adjacent to an existing cul-de-sac? If yes, is the cul-de-sac consistent with the design goal in Mobility Plan 2035 (maintain through bicycle and pedestrian access)?	MP - 3.10 Cul-de-sacs		No
Access: Driveways and Loading				
13.	Does the project site introduce a new driveway or loading access along an arterial (Avenue or Boulevard)?	MP - PL.1; MP - PK.10; CDG 4.1.02	Vision Zero	Yes
14.	If yes to 13, is a non-arterial frontage or alley access available to serve the driveway or loading access needs?	MP - PL.1; MPP - Sec No. 321 Driveway Design	Vision Zero	No
15.	Does the project site include a corner lot? (Avoid driveways too close to intersections.)	CDG 4.1.01		Yes
16.	Does the project propose a driveway width in excess of City standard?	MPP - Sec No. 321 Driveway Design		No
17.	Does the project propose more driveways than required by City maximum standard?	MPP - Sec No. 321 Driveway Design		No
18.	Are loading zones proposed as part of the project?	MP - 2.10 Loading Areas; MP - PK.1; MP - PK.7; MP - PK.8; MPP - Sec No. 321 Driveway Design		No
19.	Does the project include "drop-off" zones or areas? If yes, are such areas located to the side or rear of the building?	MP - 2.10 Loading Areas		No
20.	Does the project propose modifying, limiting/restricting, or removing public access to a public right-of-way (e.g., vacating public right-of-way?)	MP - 2.3 Pedestrian Infrastructure; MP - 3.9 Increased Network Access		No

Notes:
Questions from Table 2.1-2 of *Transportation Assessment Guidelines* (LADOT, July 2019).

TABLE C-2
PROJECT CONSISTENCY WITH MOBILITY PLAN 2035

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Chapter 1 - Safety First	
Policy 1.1, Roadway User Vulnerability Design, plan, and operate streets to prioritize the safety of the most vulnerable roadway user.	**Consistent.** The Project design includes pedestrian enhancements along the perimeter of the Project Site, which include pedestrian walkways and a pedestrian paseo. Separate pedestrian and bicycle access to the Project Site would be provided via entrances along Olive Street, 4th Street, and Hill Street. All right-of-way, roadway, and dedication widths would be designed to meet the goals and serve the long-term needs of the Mobility Plan. Further, the Project does not propose modifying, removing, or otherwise affecting existing bicycle infrastructure, and the Project driveways are not proposed along a street with an existing bicycle facility.
Chapter 2 - World Class Infrastructure	
Policy 2.2 Complete Streets Design Guide Establish the Complete Streets Design Guide as the City's document to guide the operations and design of streets and other public rights-of-way.	**Consistent.** The Project would conform to all design element requirements which may affect public rights-of-way, including proper driveway alignment, adequate sidewalk widths, improved lighting elements, and landscaping design which does not hinder sight distance, mobility, or accessibility.
Policy 2.3 Pedestrian Infrastructure Recognize walking as a component of every trip, and ensure high-quality pedestrian access in all site planning and public right-of-way modifications to provide a safe and comfortable walking environment.	**Consistent.** The Project would enhance pedestrian access within and around the Project Site by providing a new lanscaping, walkways, and a pedestrian paseo. It would provide widened and improved sidewalks adjacent to all public rights-of-way. All driveways would be designed to provide an adequate pedestrian refuge area between the driveways where necessary.
Policy 2.4 Neighborhood Enhanced Network Provide a slow speed network of locally serving streets.	**Consistent.** Hill Street south of 4th Street is part of the Neighborhood Enhanced Network. No vehicle access to the Project Site is provided along street segments identified in the Neighborhood Enhanced Network, thereby ensuring that minmum Project traffic would interfere with the neighborhood character of the surrounding area.
Policy 2.5 Transit Network Improve the performance and reliability of existing and future bus service.	**Consistent.** Broadway and 5th Street are part of the Transit Enhanced Network. No access to the Project Site is provided along street segments identified in the Transit Enhanced Network and thus, would not interfere with future improvements to existing and future transit services. The Project would encourage more transit usage by developing a major mixed-use project with convenient access to both rail and bus transit services**.**

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Mobility Plan 2035: An Element of the General Plan* (Los Angeles Department of City Planning, January 2016).

TABLE C-2 (CONTINUED)
PROJECT CONSISTENCY WITH MOBILITY PLAN 2035

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy 2.6 Bicycle Networks Provide safe, convenient, and comfortable local and regional bicycling facilities for people of all types and abilities. (includes scooters, skateboards, rollerblades, etc.)	**Consistent.** The Mobility Plan designated Hill Street south of 4th Street and 2nd Street within the Study Area as part of the Bicycle Network. The Project does not propose any driveways along these streets and thus, would not interfere with future implementation of the bicycle infrastructure. The Project provides infrastructure and services to encourage bicycling for residents, hotel guests, employees, and visitors to the Project Site. The Project will meet or exceed the required on-site bicycle space supply.
Policy 2.9 Multiple Networks Consider the role of each mode enhanced network when designing a street that included multiple modes.	**Consistent. T**he Study Area includes a mix of enhanced networks identified as part of the Mobility Plan. The Project would provide access to ground floor commercial space from all frontages that would serve the adjacent neighborhood. The Project would also improve the adjacent pedestrian facilities to enhance the pedestrian experience as well as to provide safe access to the adjacent transit stops.
Policy 2.10 Loading Areas Facilitate the provision of adequate on and off-street loading areas.	**Consistent.** The Project provides a loading dock on-site and is accessed via Olive Street. The loading dock would be designed to meet the Project Site loading needs without disrupting operations within the public right-of-way.
Policy 2.11 Transit Right-of-Way Design Set high standards in designing public transit rights-of-way that considers user experience and supporting active transportation infrastructure.	**Consistent.** The Project will maintain accessibility to the adjacent portal of the fixed heavy-rail system as well as maintain sidewalks along frontages to support transit accessibility for all users.
Policy 2.16 Scenic Highways Ensure that future modifications to any scenic highway do not impact the unique identity or characteristic of that scenic highway.	**Consistent.** The Project does not propose modifications to any scenic highway and would not impact the characteristics of a scenic highway**.**

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Mobility Plan 2035: An Element of the General Plan* (Los Angeles Department of City Planning, January 2016).

TABLE C-2 (CONTINUED)
PROJECT CONSISTENCY WITH MOBILITY PLAN 2035

Objective, Policy, Program, or Plan [a]	Analysis of Project Consistency
Policy 2.17 Street Widenings Carefully consider the overall implications (costs, character, safety, travel, infrastructure, environment) of widening a street before requiring the widening, even when the existing right of way does not include a curb and gutter or the resulting roadway would be less than the standard dimension.	**Consistent.** The Project does not propose modifications to widen streets beyond their required Mobility Plan classifications.
Chapter 3 - Access for All Angelenos	
Policy 3.1 Access for All Recognize all modes of travel, including pedestrian, bicycle, transit, and vehicular modes – including goods movement – as integral components of the City's transportation system.	**Consistent.** The Project is committed to encouraging multi-modal transportation alternatives and access for all travel modes to and from the Project Site. The Project provides separate porte cocheres for residential and hotel passenger loading on-site via the two proposed driveways, as well as infrastructure (short- and long-term bicycle parking, easy bicycle accessibility to the Project Site) to encourage walking and bicycling. The Project encourages transit usage by developing a mixed-use project located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop along Hill Street. Finally, the Project would support those residents, hotel guests, employees, and visitors who choose to travel by automobile through the provision of access points along Olive Street and 4th Street, on-site passenger loading and commercial loading, and adequate parking supply to serve demand.
Policy 3.2 People with Disabilities Accommodate the needs of people with disabilities when modifying or installing infrastructure in the public right-of-way.	**Consistent.** The Project's vehicular and pedestrian entrances would be designed in accordance with LADOT standards and would comply with Americans with Disabilities Act (ADA) requirements. The Project design would also be in compliance with all ADA requirements and would provide direct connections to pedestrian amenities at adjacent intersections.
Policy 3.3 Land Use Access and Mix Promote equitable land use decisions that result in fewer vehicle trips by providing greater proximity and access to jobs, destinations, and other neighborhood services.	**Consistent.** The Project's mix of high-density residential uses, hotel, and commercial uses located in downtown Los Angeles will encourage ridesharing and use of alternative mobility modes. Additionally, the Project includes several design features with TDM measures to reduce the number of single occupancy vehicle trips to the Project Site.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Mobility Plan 2035: An Element of the General Plan* (Los Angeles Department of City Planning, January 2016).

TABLE C-2 (CONTINUED)
PROJECT CONSISTENCY WITH MOBILITY PLAN 2035

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy 3.4 Transit Services Provide all residents, workers, and visitors with affordable, efficient, convenient, and attractive transit services.	**Consistent.** The Project is located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop along Hill Street, providing residents, hotel guests, employees, and visitors to the Project with multiple public transit services. Access to adjacent transit portals will be maintained with safe and convenient paths of travel from the Project Site.
Policy 3.5 Multi-Modal Features Support "first-mile, last-mile solutions" such as multi-modal transportation services, organizations, and activities in the areas around transit stations and major bus stops (transit stops) to maximize multi-modal connectivity and access for transit riders.	**Consistent.** The Project would support "first-mile, last-mile solutions" by developing a major mixed-use project located in an active downtown area atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop. Additionally, the Project includes several design features as TDM measures that will encourage the use of transit and other alternative modes of transportation.
Policy 3.6 Regional Transportation & Union Station Continue to promote Union Station as the major regional transportation hub linking Amtrak, Metrolink, Metro Rail, and high-speed rail service.	**Consistent.** The Project is located atop of the Metro B/D Line Pershing Square Station which provides a direct connection to Union Station.
Policy 3.7 Regional Transit Connections Improve transit access and service to major regional destinations, job centers, and inter-modal facilities.	**Consistent.** The Project would improve access between transit and major regional destinations and employment centers by developing a mix of high-density residential uses, hotel, and commercial uses located in downtown Los Angeles atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop along Hill Street.
Policy 3.8 Bicycle Parking Provide bicyclists with convenient, secure, and well-maintained bicycle parking facilities.	**Consistent.** The Project provides infrastructure and services to encourage bicycling for residents, hotel guests, employees, and visitors to the Project Site. The Project will meet or exceed the required on-site bicycle space supply of 107 short-term and 271 long-term spaces.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Mobility Plan 2035: An Element of the General Plan* (Los Angeles Department of City Planning, January 2016).

TABLE C-2 (CONTINUED)
PROJECT CONSISTENCY WITH MOBILITY PLAN 2035

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Chapter 4 - Collaboration, Communication, & Informed Choices	
Policy 4.8 Transportation Demand Management Strategies Encourage greater utilization of Transportation Demand Management (TDM) strategies to reduce dependence on single-occupancy vehicles.	**Consistent.** The Project includes several design features with TDM measures to reduce the number of single occupancy vehicle trips to the Project Site, including the following: • Include bicycle parking per LAMC, including short-term and long-term parking facilities • Pedestrian network improvements, within the Project site and connecting off-site • Encourage alternative modes of travel through its proximity to the Metro station portal
Policy 4.13 Parking and Land Use Management Balance on-street and off-street parking supply with other transportation and land use objectives.	**Consistent.** The Project would provide sufficient off-street parking to accommodate Project parking demand. Some on-street metered parking adjacent to the Project Site require removal along Olive Street and 4th Street to accommodate the new curb cuts and to improve the roadways to meet City standards. To the extent feasible, the Project would maintain existing on-street parking around Project frontage.
Chapter 5 - Clean Environments & Healthy Communities	
Policy 5.1 Sustainable Transportation Encourage the development of a sustainable transportation system that promotes environmental and public health.	**Consistent.** The Project would provide secured bicycle parking facilities and pedestrian connections within the Project Site and connecting to off-site pedestrian facilities. This would promote active transportation modes such as biking and walking. Additionally, the Project is located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop along Hill Street, providing residents, hotel guests, employees, and visitors to the Project with public transportation alternatives.
Policy 5.2 Vehicle Miles Traveled (VMT) Support ways to reduce vehicle miles traveled (VMT) per capita.	**Consistent.** The Project is estimated to generate lower VMT per capita for residents and employees than the average for the area, as demonstrated in Section 3B. Additionally, the Project incorporates several design features, which include TDM measures to reduce the number of single occupancy vehicle trips to the Project Site, including the following: • Include bike parking per LAMC, including short-term and long-term parking facilities • Pedestrian network improvements, within the Project site and connecting off-site • Encourage alternative modes of travel through its proximity to the Metro station portal

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Mobility Plan 2035: An Element of the General Plan* (Los Angeles Department of City Planning, January 2016).

TABLE C-3
PROJECT CONSISTENCY WITH PLAN FOR A HEALTHY LOS ANGELES

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Chapter 1 - Los Angeles, a Leader in Health and Equity	
Policy 1.5 Plan for Health Improve Angelenos' health and well-being by incorporating a health perspective into land use, design, policy, and zoning decisions through existing tools, practices, and programs.	**Consistent.** The Project would enhance pedestrian access within and around the Project Site through pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities. Further, the Project provides infrastructure and services to encourage bicycling for residents, hotel guests, employees, and visitors to the Project Site. As such, it would encourage the use of active travel modes and thereby promote healthy living.
Policy 1.6 Poverty and Health Reduce the debilitating impact that poverty has on individual, familial, and community health and well-being by: promoting cross-cutting efforts and partnerships to increase access to income; safe, healthy, and stable affordable housing options; and attainable opportunities for social mobility.	**Consistent.** The Project includes a mix of market rate and affordable housing units. Also, the Project proposes approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces, that can provide employment and entrepreneurial opportunities.
Policy 1.7 Displacement and Health Reduce the harmful health impacts of displacement on individuals, families and communities by pursuing strategies to create opportunities for existing residents to benefit from local revitalization efforts by: creating local employment and economic opportunities for low-income residents and local small businesses; expanding and preserving existing housing opportunities available to low-income residents; preserving cultural and social resources; and creating and implementing tools to evaluate and mitigate the potential displacement caused by large-scale investment and development.	**Consistent.** In addition to affordable housing units, the Project provides employment and entrepreneurial opportunities through its provision of up to 72,090 square feet of commercial space. The Project does not displace any existing housing; rather, it converts a substantial amount of underutilized land into an active and vibrant mixed-use community with a high density residential component.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Plan for a Healthy Los Angeles: A Health and Wellness Element of the General Plan* (Los Angeles Department of City Planning, March 2015).

TABLE C-3 (CONTINUED)
PROJECT CONSISTENCY WITH PLAN FOR A HEALTHY LOS ANGELES

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Chapter 2 - A City Built for Health	
Policy 2.8 Basic Amenities Promote increased access to basic amenities, which include public restrooms and free drinking water in public spaces, to support active living and access to health-promoting resources.	**Consistent.** The Project design includes basic amenities as well as new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities to support active living.
Chapter 5 - An Environment Where Life Thrives	
Policy 5.7 Land Use Planning for Public Health and GHG Emission Reduction Promote land use policies that reduce per capita greenhouse gas emissions, result in improved air quality and decreased air pollution, especially for children, seniors and others susceptible to respiratory diseases.	**Consistent.** The Project is estimated to generate lower VMT per capita for residents and employees than the average for the area, as demonstrated in Section 3B. Additionally, the Project incorporates several design features, which include TDM measures to reduce the number of single occupancy vehicle trips to the Project Site, including the following: • Include bike parking per LAMC, including short-term and long-term parking facilities • Pedestrian network improvements, within the Project site and connecting off-site • Encourage alternative modes of travel through its proximity to the Metro station portal VMT directly contributes to GHG emissions, so a reduced VMT per capita also reduces GHG per capita.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Plan for a Healthy Los Angeles: A Health and Wellness Element of the General Plan* (Los Angeles Department of City Planning, March 2015).

TABLE C-4
PROJECT CONSISTENCY WITH CENTRAL CITY COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy 1-1.1: Maintain zoning standards that clearly promote housing and limit ancillary commercial to that which meets the needs of neighborhood residents or is compatible with residential uses.	**Consistent.** The Project proposes a mix of high-density residential uses and approximately 72,090 square feet of commercial space.
Policy 1-3.1: Encourage a cluster neighborhood design comprised of housing and services.	**Consistent.** The Project proposes a mix of high-density residential uses and approximately 72,090 square feet of commercial space.
Policy 2-1.2: To maintain a safe, clean, attractive, and lively environment.	**Consistent.** The Project would provide pedestrian enhancements within and along the perimeter of the Project Site, a pedestrian paseo, public open space, and recreational amenities tomaintain an attractive and lively environment.
Policy 2-1.1: Focus on attracting businesses and retail uses that build on existing strengths of the area in terms of both the labor force, and businesses.	**Consistent.** The Project proposes hotel uses and approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces, that can provide employment and entrepreneurial opportunities.
Policy 2-2.2: To encourage pedestrian-oriented and visitor serving uses during the evening hours especially along the Grand Avenue cultural corridor between the Hollywood Freeway (US 101) and Fifth Street, the Figueroa Street corridor between the Santa Monica Freeway (I-10) and Fifth Street and Broadway between Third Street and Ninth Street.	**Consistent.** The Project is a major mixed-use project that is conceived as a pedestrian- and transit-oriented development. It would enhance the pedestrian identity of the area with protected pick-up / drop-off areas in the port-cocheres.
Policy 2-2.3: Support the growth of neighborhoods with small, local retail services.	**Consistent.** The Project proposes approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces and opportunities for small local retail services.

Notes:

[a] Objectives, Policies, Programs, or Plans based on information provided in the *Central City Community Plan* (Los Angeles Department of City Planning, 2003).

TABLE C-4
PROJECT CONSISTENCY WITH CENTRAL CITY COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy 2-4.1: Promote night life activity by encouraging restaurants, pubs, night clubs, small theaters, and other specialty uses to reinforce existing pockets of activity.	**Consistent.** The Project proposes approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces, that encourages pockets of activity.
Policy 2-5.1: Make Downtown a tourist destination by combining its cultural and commercial offerings with those of the ethnic communities surrounding it.	**Consistent.** The Project proposes approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces.
Policy 11-1.1: Encourage rail connections and High Occupancy Vehicle (HOV) lanes that will serve the downtown traveler.	**Consistent.** The Project is located atop of the Metro B/D Line Pershing Square Station which provides a direct connection to Union Station.
Policy 11-6.1: Preserve and enhance Central City's primary pedestrian-oriented streets and sidewalks and create a framework for the provision of additional pedestrian friendly streets and sidewalks which complement the unique qualities and character of the communities in Central City.	**Consistent.** The Project is a major mixed-use project that is conceived as a pedestrian- and transit-oriented development with various pedestrian enhancements within and along the Project Site perimeter, as well as its location to transit services. It would enhance the pedestrian identity of the area with protected pick-up / drop-off areas in the port coceres.
Policy 11-7.1: Encourage transportation strategies that include parking and TDM policies and actions that increase ridesharing and give priority to visitor/shopper parking.	**Consistent.** The Project incorporates several design features, which include TDM measures to reduce the number of single occupancy vehicle trips to the Project Site.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the *Central City Community Plan* (Los Angeles Department of City Planning, 2003).

TABLE C-5
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy LU 1.1: Ensure the development of complete neighborhoods with diverse uses and resilient infrastructure, parks, streetscapes, transit, and community amenities.	**Consistent.** The Project proposes diverse uses including a mix of high-density residential uses, hotel, and commercial uses located in downtown Los Angeles atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop.
Policy LU 1.2: Create zoning tools to provide for a diverse and inclusive Downtown through a range of housing and employment options.	**Consistent.** The Project includes a mix of market rate and affordable housing units. Also, the Project proposes approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces, that can provide employment and entrepreneurial opportunities.
Policy LU 1.3: Establish an incentive zoning system that delivers public benefits such as affordable housing, public open space, historic preservation, and community facilities to Downtown communities.	**Consistent.** The Project includes a mix of market rate and affordable housing units. Also, the Project would provide a pedestrian paseo and both public and private open space and recreational amenities.
Policy LU 1.4: Support the expansion of uses that provide access to arts, culture, and entertainment for people throughout the region.	**Consistent.** The Project proposes approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces.
Policy LU 2.1: Foster an equitable and inclusive Downtown, with housing options that can accommodate the fullest range of economic and social needs.	**Consistent.** The Project includes a mix of market rate and affordable housing units.
Policy LU 2.4: Encourage a mix of rental and ownership housing and facilitate the development of permanent supportive housing.	**Consistent.** The Project includes a mix of market rate and affordable housing units, as well as rental and ownership housing opportunities.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-5 (CONTINUED)
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy LU 3.1: Recognize additional housing unit options to accommodate a variety of household sizes, including larger households, such as those with children, multigenerational living, and special needs populations.	**Consistent.** The Project includes a mix of market rate and affordable housing units with various unit mixes.
Policy LU 3.3: Foster healthy communities composed of mixed-income housing in proximity to transit, jobs, amenities, services, cultural resources, and recreational facilities.	**Consistent.** The Project The Project includes a mix of market rate and affordable housing units located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop**.**
Policy LU 3.4: Disaggregate the cost of parking from the cost of housing and eliminate residential parking requirements to allow flexibility and create better affordability at all levels.	**Consistent.** The Project will consider TDM program to include unbundled parking, which separates parking leasing from residential leasing.
Policy LU 4.1: Balance housing and employment uses to encourage vibrancy and reinforce Downtown as a community, as well as a destination.	**Consistent.** The Project proposes a mix of high-density residential uses, hotel, and commercial uses that supports balance of housing and employment.
Policy LU 4.2: Find opportunities to create affordable housing options for middle income and workforce populations.	**Consistent.** The Project includes a mix of market rate and affordable housing units.
Policy LU 4.3: Promote shared on-site amenities, including usable open space in new development projects.	**Consistent.** The Project would provide both public and private open space, recreational amenities, and bicycle infrastructure and services as part of its shared on-site amenities.

Notes:

[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-5 (CONTINUED)
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy LU 6.3: Recognize creative arts, culture, neighborhood character, dynamic public spaces, and diverse populations as significant components of Downtown's economic ecosystem, and support programs and developments that seek to enhance these resources.	**Consistent.** The Project proposes approximately 72,090 square feet of commercial space, which may ultimately include cultural/civic spaces.
Policy LU 8.4: Expand access to employment opportunities with improved physical connections to and within Downtown and expanded transit service to employment districts.	**Consistent.** The Project proposes diverse uses including a mix of high-density residential uses, hotel, and commercial uses located in downtown Los Angeles atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop.
Policy LU 8.6: Encourage mixed-use and commercial development to provide retail spaces conducive to community-serving small businesses and business incubation.	**Consistent.** The Project proposes a mix of high-density residential uses, hotel, and commercial uses.
Policy LU 9.4: Support infill development that responds and contributes to neighborhood character.	**Consistent.** The Project is an infill development as it proposes to convert a substantial amount of underutilized land into an active and vibrant mixed-use community that includes high-density residential uses, hotel, and commercial uses.
Policy LU 10.1: Require active ground floors and street frontages that improve walkability and connectivity, especially between transit stations and nearby destinations.	**Consistent.** The Project incorporates neighborhood serving ground floor commercial uses oriented toward 4th Street and Hill Street to help encourage pedestrian engagement. In addition, pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities would be provided on-site. Further, the Project Site is located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-5 (CONTINUED)
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy LU 10.2: Encourage development that is well integrated with the public realm to create an inviting urban environment.	**Consistent.** The Project provides mixed-uses near transit with accessible entries and passages as part of the surrounding ideal urban environment.
Policy LU 10.3: Incentivize the inclusion of paseos through large sites to improve pedestrian access.	**Consistent.** The Project would improve pedestrian access through pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities.
Policy LU 10.4: Encourage building design that connects and orients people toward destinations and activity centers.	**Consistent.** The Project provides easy access to adjacent transit and nearby attractions, including Angels Flight funicular, Grand Central Market, sports venues and shopping districts. The site includes impressive viewpoints, open space, and comfortable outdoor amenities.
Policy LU 10.8: Promote compact development and encourage walking, biking, and transit use by encouraging no or minimal parking, when possible.	**Consistent.** The Project, by virtue of being a high-density mixed-use development, is compact by design. The Project does not propose excess parking as compared to the LAMC requirements. Additionally, it provides encourages alternative transportation by providing secured bicycle parking facilities and pedestrian connections within the Project Site and connecting to off-site pedestrian facilities. This would promote active transportation modes such as biking and walking. Additionally, the Project is located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop along Hill Street, providing residents, hotel guests, employees, and visitors to the Project with public transportation alternatives.
Policy LU 10.9: Encourage underground parking, when provided, to increase the amount of above grade building square footage dedicated to active uses and to improve the pedestrian environment.	**Consistent.** All Project parking would be located underground rather than exposed to those traveling on adjacent streets.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-5 (CONTINUED)
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy LU 18.2: Ensure a vibrant mixture of land uses, including office, hotel, retail, residential, cultural, and entertainment, that together reinforce Downtown as the primary center of urban activity in the Southern California region.	**Consistent.** The Project proposes vibrant mixure of uses including high-density residential uses, hotel, and commercial uses located in downtown Los Angeles**.**
Policy LU 21.2: Foster and reinforce cohesive, pedestrian-friendly, and inviting screeetscapes that promote walking, bicycling, and transit use. Encourage the creative infill of landscaped setbacks and inoperative spaces, such as those resulting from inconsistent streetwalls.	**Consistent.** The Project incorporates neighborhood serving ground floor commercial uses toward 4th Street and Hill Street and a pedestrian paseo to provide enhanced pedestrian experience.
Policy LU 21.3: Pursue the implementation of a legible and consistent wayfinding system that guides pedestrians to destinations of interest and transit portals, such as Metro Stations.	**Consistent.** The existing Metro B/D Line Pershing Square Station portal would be integrated to the design of the Project. The Project proposes the construction of a new structure, including a café and other amenities.
Policy LU 21.5: Promote the activation of ground floors of buildings and public plazas with enlivening uses such as kiosks and shops to create a lively urban environment and seamless interaction between private open space and sidewalks.	**Consistent.** The Project incorporates neighborhood serving ground floor commercial uses oriented toward 4th Street and Hill Street to help encourage pedestrian engagement. In addition, pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities would be provided on-site.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-5 (CONTINUED)
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy LU 21.6: Encourage new developments to contribute to the pedestrian and open space network with publicly accessible plazas and paseos. Design these spaces with appropriate shade and landscaping.	**Consistent.** The Project incorporates neighborhood serving ground floor commercial uses oriented toward 4th Street and Hill Street to help encourage pedestrian engagement. In addition, pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities would be provided on-site. Furhter, canopy trees and other landscaping elements would be incorporated to provide adequate shade and habitat to provide a more comfortable mobility environment for pedestrians.
Policy LU 21.7: Develop well-designed towers that include upper floor building design and rooflines that create visual interest and contribute to a distinctive skyline.	**Consistent.** The Project proposes well-designed towers that are consistent with the neighborhood character and create a distinctive skyline.
Policy LU 21.9: Encourage an active, walkable environment through building design that incorporates active ground floor uses and streetscape elements that provide an enhanced pedestrian experience.	**Consistent.** The Project incorporates neighborhood serving ground floor commercial uses toward 4th Street and Hill Street and a pedestrian paseo to provide enhanced pedestrian experience.
Policy MC 2.1: Establish a mode share goal of 75% for transit, walking, and biking for the year 2040 to improve the sustainability of Downtown's mobility network and increase access for residents, workers, and visitors.	**Consistent.** Although Policy MC 2.1 sets a City goal for mode share and not a project-specific goal, the Project would be consistent with this policy. Specifically, the Project would support multi-modal mobility options such as biking and transit usage. Additionally, the Project incorporates several design features, which include TDM measures to reduce the number of single occupancy vehicle trips to the Project Site.
Policy MC 2.2: Implement strategies to reduce vehicle miles traveled per capita.	**Consistent.** The Project is estimated to generate lower VMT per capita for residents and employees than the average for the area. Further, it would implement a TDM program to further reduce VMT per capita.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-5 (CONTINUED)
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy MC 2.4: Promote the use of technologies that can facilitate multimodal travel by improving wayfinding and access to transit schedules, especially for visitors and new users of the Downtown transit system.	**Consistent.** The Project provides a direct path to Metro's heavy-rail portal. While not encroaching on the portal itself, the surrounding elements will be fortified with amenities, landscaping, and lighting. Wayfinding signage to public transit can be incorporated into the pedestrian paths.
Policy MC 2.5: Facilitate integration between different modes of travel to create a seamless experiences as users switch between modes and to promote transit use and active transportation.	**Consistent.** The Project would support multi-modal mobility options such as biking and is located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop, thereby providing a seamless multi-modal experience.
Policy MC 3.2: Encourage the installation of curb ramps, signalized crosswalks, and other pedestrian safety improvements throughout Downtown.	**Consistent.** The Project will comply with and make accessible all off-site improvements should they fall within the scope of the analyses. The Project supports access for all users and would encourage adjacent, future development to be inclusive by way of intelligent, accessible design.
Policy MC 3.4: Enhance the pedestrian experience between major destinations and transit stations through improved streetscapes and wayfinding programs.	**Consistent.** The Project is located atop of the Metro B/D Line Pershing Square Station and adjacent to a Metro bus stop and would enhance pedestrian experience through pedestrian improvements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities on-site.
Policy MC 4.2: Encourage residential and office buildings to provide bicycle related amenities such as repair stations and showers to facilitate cycling for residents, workers, and visitors.	**Consistent.** The Project proposes high-density residential uses, hotel, and commercial uses and would provide bicycle infrastructure, services, and amenities to encourage bicycling for residents, hotel guests, employees, and visitors to the Project Site.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-6
PROJECT CONSISTENCY WITH CITYWIDE DESIGN GUIDELINES

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Pedestrian-First Design	
Guideline 1: Promote a safe, comfortable, and accessible pedestrian experience for all Design projects to be safe and accesible and contribute to a better public right-of-way for people of all ages, genders, and abilities, especially the most vulnerable - children, seniors, and people with disabilities. **Guideline 2: Carefully incorporate vehicular access such that it does not degrade the pedestrian experience** Design to avoid pedestrian and vehiular conflicts and to create an inviting and comfortable public right-of-way. A pleasant and welcoming public realm reinforces walkability and improves the quality of life for users. **Guideline 3: Design projects to actively engage with streets and public space and maintain human scale** New projects should be designed to contribute to a vibrant and attractive public realm that promotes a sense of civic pride. Better connections within the built environment contribute to a livable and accessible city and a healthier public realm.	**Consistent.** The Project design includes accessible sidewalks, pedestrian amenities, and well-designed vehicular access driveways in accordance with the City's design considerations. The Project design also includes pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, and a pedestrian paseo. In addition, adequate sidewalks along Olive Street and 4th Street would be provided in accordance with the City's Living Streets design considerations. Thus, canopy trees and other landscaping elements would be incorporated to provide adequate shade and habitat to provide a more comfortable mobility environment for pedestrians. Further, the orientation of the Project design and active ground floor facilities ensures that the Project actively engages with the street and its surrounding uses.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the Citywide Design Guidelines (Los Angeles Department of City Planning, 2019).

TABLE C-6
PROJECT CONSISTENCY WITH CITYWIDE DESIGN GUIDELINES

Objective, Policy, Program, or Plan [a]	Analysis of Project Consistency
360 Degree Design	
Guideline 6: Provide amenities that support community building and provide an inviting, comfortable user experience Design to create livable places and desirable environments where people want to spend time engaging in social, civic, and recreational activities. Projects that encourage connections with a variety of transit modes and enhance their immediate environment with amenities are highly encouraged.	**Consistent.** The Project design also includes elements that reinforce orientation to the street, such as glass windows and easily recognizable entrances. The Project would provide landscaped spaces along 4th Street and Hill Street, enhancing the inviting and comfortable user experience of the Project Site. Further, all design elements of the Project would be developed in conjunction with the others to ensure consistency of the architectural ideas.
Climate-Adpated Design	
Guideline 9: Configure the site layout, building massing and orientation to lower energy demand and increase the comfort and well-being of users Design projects to incorporate sustainable design and energy efficiency principles. Encouraging sustainability and innovation contributes to the well-being of current and future generations.	**Consistent.** The Project would incorporate elements of shade, natural light, and ventilation as considerations in the building orientation and design. Further, the Project would incorporate trees and landscaped areas to provide shaded spaces for community benefits.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the Citywide Design Guidelines (Los Angeles Department of City Planning, 2019).

TABLE C-5 (CONTINUED)
PROJECT CONSISTENCY WITH DRAFT DOWNTOWN COMMUNITY PLAN

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Policy MC 5.3: Enhance wayfinding information that directs transit users to centers of activity and facilitates pedestrian connections.	**Consistent.** Wayfinding signage to public transit and other attractions will be incorporated into the pedestrian paths.
Policy MC 6.5: Require that parking be unbundled from purchase price and lease rates in order to create mobility options and to encourage other modes of travel and increase affordability at all levels.	**Consistent.** The Project will consider unbundled parking, which separates parking leasing from residential leasing.
Policy MC 7.3: Encourage projects to include designated spaces for rideshare vehicles and pick-up / drop-off zones.	**Consistent.** The Project provides a protected pick-up / drop-off area on-site within the separate residentail and hotel porte cocheres accessible via Olive Street and 4th Street.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in the draft text of the *Downtown Community Plan* (Los Angeles Department of City Planning, July 2019).

TABLE C-7
PROJECT CONSISTENCY WITH WALKABILITY CHECKLIST

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Sidewalks	
Objective Support ease of pedestrian movement and enrich the quality of the public realm by providing appropriate connections and street furnishings in the public right-of-way. **Policies** 1. Delineate the pedestrian corridor. 2. Provide for pedestrian safety and comfort. 3. Encourage pedestrian travel. 4. Create active environments by supporting a variety of pedestrian activities. 5. Create, preserve, and enhance neighborhood identity and "placemaking." 6. Comply with governmental regulations for all improvements in the public right-of-way.	**Consistent.** The Project incorporates neighborhood serving ground floor commercial uses oriented toward 4th Street and Hill Street to help encourage pedestrian engagement. In addition, pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities would be provided on-site.
Crosswalks / Street Crossings	
Objective Pedestrian safety is the primary concern in designing and managing street crossings. Crossings that are safe, easy to use, and well-marked support active, pedestrian-friendly environments and link both sides of the street physically and visually. **Policies** 1. Appropriately locate street crossings in response to the anticipated traffic flow and convenience of the pedestrian. 2. Provide for pedestrian safety and comfort. 3. Increase the level of caution of pedestrians and motorists. 4. Create a link between the two sides of the street or mark a block's mid-point or end-point. 5. Ensure crosswalks are in compliance with LADOT and Public Works regulations.	**Consistent.** The Project includes corner lots at Olive Street & 4th Street and Hill Street & 4th Street, both of which are signalized intersections with marked pedestrian crossings , pedestrian phasing, and ADA curb ramps. Additionally, signalized midblock crosswalks are available along Olive Street and Hill Street which provide further pedestrian facilities to access the Project Site.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Walkability Checklist* (Los Angeles Department of City Planning, November 2008).

TABLE C-7 (CONTINUED)
PROJECT CONSISTENCY WITH WALKABILITY CHECKLIST

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
On-Street Parking	
Objective On-street parking is often desired in residential and commercial areas for its convenient access to street front entrances. Residents, shoppers, and businesses are amenable to limited slowing of traffic as a trade-off for the economic benefits of on-street parking. **Policies** 1. Maximize on-street parking. 2. Directly serve adjacent street front entrances with on-street parking. 3. Create a buffer between pedestrians and the roadway. 4. Comply with applicable governmental regulations for all parking in the public right-of-way.	**Consistent.** Some on-street metered parking adjacent to the Project Site require removal along Olive Street and 4th Street to accommodate the new curb cuts and to improve the roadways to meet City standards. To the extent feasible, the Project would maintain existing on-street parking around Project frontage. The Project would also provide sufficient off-street parking on-site to accommodate the requirements of the Project.
Building Orientation	
Objective Use the relationship between building and street to improve neighborhood character and the pedestrian environment. **Policies** 1. Enliven the public realm by siting buildings so they interact with the sidewalk and the street. 3. Support ease of accessibility to buildings.	**Consistent.** The Project incorporates neighborhood serving ground floor commercial uses oriented toward 4th Street and Hill Street to help encourage pedestrian engagement. In addition, pedestrian enhancements along the perimeter of the Project Site, new pedestrian walkways, a pedestrian paseo, and both public and private open space and recreational amenities would be provided on-site.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Walkability Checklist* (Los Angeles Department of City Planning, November 2008).

TABLE C-7 (CONTINUED)
PROJECT CONSISTENCY WITH WALKABILITY CHECKLIST

Objective, Policy, Program, or Plan [a]	**Analysis of Project Consistency**
Off-Street Parking and Driveways	
Objective The safety of the pedestrian is primary in an environment that must accommodate pedestrians and vehicles. **Policies** 1. Ensure that clear and convenient access for pedestrians is not minimized by vehicular needs. 2. Eliminate auto-pedestrian conflicts. 3. Increase awareness between pedestrians and motorists. 4. Maintain the character of a pedestrian friendly street.	**Consistent.** The Project prioritizes the pedestrian experience, including safety. It provides a protected pick-up / drop-off area on-site within the separate residentail and hotel porte cocheres accessible via Olive Street and 4th Street. Further, pedestrian access is separate from all vehicular access, and vehicular access would be located in such a way as to minimize interaction between vehicles and pedestrians. All Project parking would be located underground rather than exposed to those traveling on adjacent streets.

Notes:
[a] Objectives, Policies, Programs, or Plans based on information provided in *Walkability Checklist* (Los Angeles Department of City Planning, November 2008).

Appendix D

Vehicle Miles Traveled Worksheets

CITY OF LOS ANGELES VMT CALCULATOR Version 1.2

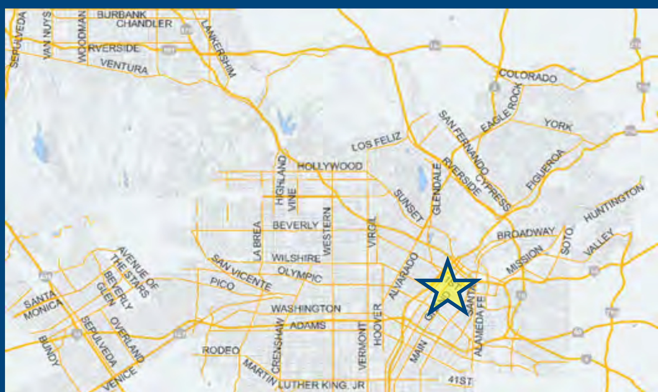
Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

Project Information

Project: ANGELS LANDING (358 S Olive St)

Scenario:

Address: 34.051352, -118.250772



If the project is replacing an existing number of residential units with a smaller number of residential units, is the proposed project located within one-half mile of a fixed-rail or fixed-guideway transit station?

○ Yes ○ No

Existing Land Use

Land Use Type	Value	Unit
Housing | Single Family		DU

☐ Click here to add a single custom land use type (will be included in the above list)

Proposed Project Land Use

Land Use Type	Value	Unit
Retail | Quality Restaurant	21.627	ksf
Housing | Multi-Family	432	DU
Housing | Hotel	515	Rooms
Retail | General Retail	28.836	ksf
Retail | High-Turnover Sit-Down Restaurant	21.627	ksf
Retail | Quality Restaurant	21.627	ksf

☐ Click here to add a single custom land use type (will be included in the above list)

Project Screening Summary

Existing Land Use	Proposed Project
0 Daily Vehicle Trips	**5,410** Daily Vehicle Trips
0 Daily VMT	**40,033** Daily VMT

Tier 1 Screening Criteria

Project will have less residential units compared to existing residential units & is within one-half mile of a fixed-rail station. ☐

Tier 2 Screening Criteria

The net increase in daily trips < 250 trips	5,410 Net Daily Trips
The net increase in daily VMT ≤ 0	40,033 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	72.090 ksf

The proposed project is required to perform VMT analysis.

Measuring the Miles

12/5/2019

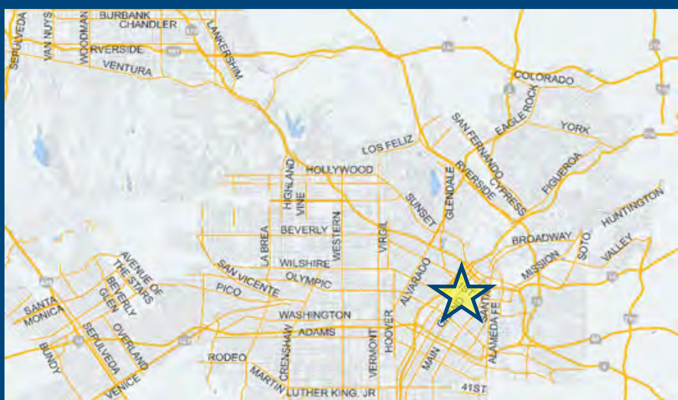
CITY OF LOS ANGELES VMT CALCULATOR Version 1.2

Project Information

Project: ANGELS LANDING (358 S Olive St)

Scenario:

Address: 34.051352, -118.250772



Proposed Project Land Use Type	Value	Unit
Housing | Multi-Family	432	DU
Housing | Hotel	515	Rooms
Retail | General Retail	28.836	ksf
Retail | High-Turnover Sit-Down Restaurant	21.627	ksf
Retail | Quality Restaurant	21.627	ksf

TDM Strategies

Select each section to show individual strategies

Use ☑ to denote if the TDM strategy is part of the proposed project or is a mitigation strategy

	Proposed Project	With Mitigation
Max Home Based TDM Achieved?	**No**	**No**
Max Work Based TDM Achieved?	**No**	**No**

A Parking

Reduce Parking Supply
- 100 city code parking provision for the project site
- 74 actual parking provision for the project site
- ☐ Proposed Prj ☐ Mitigation

Unbundle Parking
- 150 monthly parking cost (dollar) for the project site
- ☐ Proposed Prj ☐ Mitigation

Parking Cash-Out
- 50 percent of employees eligible
- ☐ Proposed Prj ☐ Mitigation

Price Workplace Parking
- 6.00 daily parking charge (dollar)
- 25 percent of employees subject to priced parking
- ☐ Proposed Prj ☐ Mitigation

Residential Area Parking Permits
- 200 cost (dollar) of annual permit
- ☐ Proposed Prj ☐ Mitigation

B Transit

C Education & Encouragement

D Commute Trip Reductions

E Shared Mobility

F Bicycle Infrastructure

G Neighborhood Enhancement

Analysis Results

	Proposed Project	With Mitigation
Daily Vehicle Trips	5,410	5,410
Daily VMT	40,033	40,033
Household VMT per Capita	3.9	3.9
Work VMT per Employee	7.3	7.3

Significant VMT Impact?

Proposed Project	With Mitigation
Household: No Threshold = 6.0 15% Below APC	**Household: No** Threshold = 6.0 15% Below APC
Work: No Threshold = 7.6 15% Below APC	**Work: No** Threshold = 7.6 15% Below APC

Measuring the Miles

12/5/2019

Project Information

Land Use Type		Value	Units
Housing	*Single Family*	*0*	*DU*
	Multi Family	432	DU
	Townhouse	*0*	*DU*
	Hotel	515	Rooms
	Motel	*0*	*Rooms*
Affordable Housing	*Family*	*0*	*DU*
	Senior	*0*	*DU*
	Special Needs	*0*	*DU*
	Permanent Supportive	*0*	*DU*
Retail	General Retail	28.836	ksf
	Furniture Store	*0.000*	*ksf*
	Pharmacy/Drugstore	*0.000*	*ksf*
	Supermarket	*0.000*	*ksf*
	Bank	*0.000*	*ksf*
	Health Club	*0.000*	*ksf*
	High-Turnover Sit-Down Restaurant	21.627	ksf
	Fast-Food Restaurant	*0.000*	*ksf*
	Quality Restaurant	21.627	ksf
	Auto Repair	*0.000*	*ksf*
	Home Improvement	*0.000*	*ksf*
	Free-Standing Discount	*0.000*	*ksf*
	Movie Theater	*0*	*Seats*
Office	*General Office*	*0.000*	*ksf*
	Medical Office	*0.000*	*ksf*
Industrial	*Light Industrial*	*0.000*	*ksf*
	Manufacturing	*0.000*	*ksf*
	Warehousing/Self-Storage	*0.000*	*ksf*
School	*University*	*0*	*Students*
	High School	*0*	*Students*
	Middle School	*0*	*Students*
	Elementary	*0*	*Students*
	Private School (K-12)	*0*	*Students*
Other		*0*	*Trips*

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

Analysis Results

Total Employees: 488
Total Population: 973

Proposed Project		*With Mitigation*	
5,410	**Daily Vehicle Trips**	**5,410**	**Daily Vehicle Trips**
40,033	**Daily VMT**	**40,033**	**Daily VMT**
3.9	**Household VMT per Capita**	**3.9**	**Household VMT per Capita**
7.3	**Work VMT per Employee**	**7.3**	**Work VMT per Employee**

Significant VMT Impact?

APC: Central

Impact Threshold: 15% Below APC Average
Household = 6.0
Work = 7.6

Proposed Project		*With Mitigation*	
VMT Threshold	**Impact**	**VMT Threshold**	**Impact**
Household > 6.0	No	Household > 6.0	No
Work > 7.6	No	Work > 7.6	No

TDM Strategy Inputs

Strategy Type		Description	Proposed Project	Mitigations
Parking	*Reduce parking supply*	*City code parking provision (spaces)*	*0*	*0*
		Actual parking provision (spaces)	*0*	*0*
	Unbundle parking	*Monthly cost for parking ($)*	*$0*	*$0*
	Parking cash-out	*Employees eligible (%)*	*0%*	*0%*
	Price workplace parking	*Daily parking charge ($)*	*$0.00*	*$0.00*
		Employees subject to priced parking (%)	*0%*	*0%*
	Residential area parking permits	*Cost of annual permit ($)*	*$0*	*$0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Transit	Reduce transit headways	Reduction in headways (increase in frequency) (%)	0%	0%
		Existing transit mode share (as a percent of total daily trips) (%)	0%	0%
		Lines within project site improved (<50%, >=50%)	0	0
	Implement neighborhood shuttle	Degree of implementation (low, medium, high)	0	0
		Employees and residents eligible (%)	0%	0%
	Transit subsidies	Employees and residents eligible (%)	0%	0%
		Amount of transit subsidy per passenger (daily equivalent) ($)	$0.00	$0.00
Education & Encouragement	Voluntary travel behavior change program	Employees and residents participating (%)	0%	0%
	Promotions and marketing	Employees and residents participating (%)	0%	0%

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Commute Trip Reductions	*Required commute trip reduction program*	*Employees participating (%)*	*0%*	*0%*
	Alternative Work Schedules and Telecommute	*Employees participating (%)*	*0%*	*0%*
		Type of program	*0*	*0*
	Employer sponsored vanpool or shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees eligible (%)	*0%*	*0%*
		Employer size (small, medium, large)	*0*	*0*
	Ride-share program	*Employees eligible (%)*	*0%*	*0%*
Shared Mobility	*Car share*	*Car share project setting (Urban, Suburban, All Other)*	*0*	*0*
	Bike share	*Within 600 feet of existing bike share station - OR-implementing new bike share station (Yes/No)*	*0*	*0*
	School carpool program	*Level of implementation (Low, Medium, High)*	*0*	*0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Bicycle Infrastructure	*Implement/Improve on-street bicycle facility*	*Provide bicycle facility along site (Yes/No)*	*0*	*0*
	Include Bike parking per LAMC	*Meets City Bike Parking Code (Yes/No)*	*0*	*0*
	Include secure bike parking and showers	*Includes indoor bike parking/lockers, showers, & repair station (Yes/No)*	*0*	*0*
Neighborhood Enhancement	*Traffic calming improvements*	*Streets with traffic calming improvements (%)*	*0%*	*0%*
		Intersections with traffic calming improvements (%)	*0%*	*0%*
	Pedestrian network improvements	*Included (within project and connecting off-site/within project only)*	*0*	*0*

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

TDM Adjustments by Trip Purpose & Strategy

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Parking	Reduce parking supply	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Parking sections 1 - 5
	Unbundle parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Parking cash-out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Price workplace parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Residential area parking permits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Transit	Reduce transit headways	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Transit sections 1 - 3
	Implement neighborhood shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Transit subsidies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Education & Encouragement	Voluntary travel behavior change program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Education & Encouragement sections 1 - 2
	Promotions and marketing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Commute Trip Reductions	Required commute trip reduction program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Commute Trip Reductions sections 1 - 4
	Alternative Work Schedules and Telecommute Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Employer sponsored vanpool or shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Ride-share program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Shared Mobility	Car-share	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Shared Mobility sections 1 - 3
	Bike share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
	School carpool program	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

TDM Adjustments by Trip Purpose & Strategy, Cont.

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Bicycle Infrastructure	Implement/ Improve on-street bicycle facility	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Bicycle Infrastructure sections 1 - 3
	Include Bike parking per LAMC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Include secure bike parking and showers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Neighborhood Enhancement	Traffic calming improvements	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Neighborhood Enhancement sections 1 - 2
	Pedestrian network improvements	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Final Combined & Maximum TDM Effect

	Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*	
	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated
COMBINED TOTAL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
MAX. TDM EFFECT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

= Minimum (X%, 1-[(1-A)*(1-B)...])
where X%=

PLACE TYPE MAX:	urban	75%
	compact infill	*40%*
	suburban center	*20%*
	suburban	*15%*

Note: (1-[(1-A)*(1-B)...]) reflects the dampened combined effectiveness of TDM Strategies (e.g., A, B,...). See the TDM Strategy Appendix (*Transportation Assessment Guidelines Attachment G)* for further discussion of dampening.

CITY OF LOS ANGELES VMT CALCULATOR

Report 4: MXD Methodology

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

MXD Methodology - Project Without TDM

	Unadjusted Trips	MXD Adjustment	MXD Trips	Average Trip Length	Unadjusted VMT	MXD VMT
Home Based Work Production	585	-40.7%	347	5.1	2,984	1,770
Home Based Other Production	1,567	-68.9%	487	4.1	6,425	1,997
Non-Home Based Other Production	1,475	-26.0%	1,091	9.0	13,275	9,819
Home-Based Work Attraction	708	-40.3%	423	8.4	5,947	3,553
Home-Based Other Attraction	5,856	-68.4%	1,851	7.2	42,163	13,327
Non-Home Based Other Attraction	1,632	-25.8%	1,211	7.9	12,893	9,567

MXD Methodology with TDM Measures

	Proposed Project			*Project with Mitigation Measures*		
	TDM Adjustment	Project Trips	Project VMT	TDM Adjustment	Mitigated Trips	Mitigated VMT
Home Based Work Production	0.0%	347	1,770	0.0%	347	1,770
Home Based Other Production	0.0%	487	1,997	0.0%	487	1,997
Non-Home Based Other Production	0.0%	1,091	9,819	0.0%	1,091	9,819
Home-Based Work Attraction	0.0%	423	3,553	0.0%	423	3,553
Home-Based Other Attraction	0.0%	1,851	13,327	0.0%	1,851	13,327
Non-Home Based Other Attraction	0.0%	1,211	9,567	0.0%	1,211	9,567

MXD VMT Methodology Per Capita & Per Employee

Total Population: 973
Total Employees: 488
APC: Central

	Proposed Project	*Project with Mitigation Measures*
Total Home Based Production VMT	**3,767**	**3,767**
Total Home Based Work Attraction VMT	**3,553**	**3,553**
Total Home Based VMT Per Capita	**3.9**	**3.9**
Total Work Based VMT Per Employee	**7.3**	**7.3**

Appendix E

Caltrans Worksheets

TABLE E-1
FREEWAY OFF-RAMP QUEUING SAFETY ANALYSIS

Off-ramp	Ramp Storage Length			Peak Hour	95th Percentile Queue		Exceeds Ramp Storage [b]	Project Adds 50 Feet [c]	Requires Speed Analysis [d]
	Ramp	Auxiliary Lane	Total [a]		Future without Project Conditions	Future with Project Conditions			
SR 110 Southbound Off-ramp to 4th Street [e]	2,830	855	3,258	AM	115	120	NO	NO	NO
				PM	153	160	NO	NO	NO
SR 110 Northbound Off-ramp to 4th Street [e]	2,030	4,320	4,190	AM	115	120	NO	NO	NO
				PM	153	160	NO	NO	NO
SR 110 Northbound Off-ramp to 6th Street	845	2,850	2,270	AM	199	210	NO	NO	NO
				PM	163	182	NO	NO	NO

Notes:

Ramp storage length and 95th percentile queue reported in feet.

[a] Includes ramp length (from stop line to gore point) as well as half the length of any auxiliary lane, if provided.

[b] Based on Future with Project Conditions queue.

[c] The difference in queue length between Future with Project Conditions and Future without Project Conditions.

[d] Speed differential analysis is required if the ramp storage length is exceeded and the Project adds 50 or more feet to the queue length.

[e] The off-ramps merge with 4th Street in the eastbound direction, providing two additional through lanes. Traffic operates at free-flow conditions and is controlled by a signal at the intersection of Lower Grand Avenue & 4th Street, located approximately 1,200 feet east of the merge point. Thus, the reported 95th percentile queue are based on the eastbound queue at the signalized location. Although, the individual 95th percentile queue for each off-ramp cannot be determined at this location, each off-ramp has more than sufficient storage length to accommodate cumulative traffic, both without and with Project traffic.

Attachments

Turning Movement Count Report AM

Location ID: 3
North/South: Figueroa Street
East/West: 6th Street

Date: 01/28/15
City: Los Angeles, CA

	Southbound			Westbound			Northbound			Eastbound			
	1	2	3	4	5	6	7	8	9	10	11	12	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
7:00	0	0	0	0	0	0	30	370	0	0	263	38	701
7:15	0	0	0	0	0	0	25	390	0	0	307	45	767
7:30	0	0	0	0	0	0	28	448	0	0	410	58	944
7:45	0	0	0	0	0	0	50	445	0	0	454	60	1009
8:00	0	0	0	0	0	0	49	447	0	0	438	48	982
8:15	0	0	0	0	0	0	50	457	0	0	377	51	935
8:30	0	0	0	0	0	0	47	467	0	0	501	53	1068
8:45	0	0	0	0	0	0	51	428	0	0	432	69	980
9:00	0	0	0	0	0	0	42	368	0	0	478	55	943
9:15	0	0	0	0	0	0	46	372	0	0	382	64	864
9:30	0	0	0	0	0	0	40	367	0	0	387	53	847
9:45	0	0	0	0	0	0	50	347	0	0	366	44	807

Total Volume:	0	0	0	0	0	0	508	4906	0	0	4795	638	10847
Approach %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	9%	91%	0%	0%	88%	12%	

Peak Hr Begin:	7:30												
PHV	0	0	0	0	0	0	177	1797	0	0	1679	217	3870
PHF	#DIV/0!			#DIV/0!			0.973			0.922			1.097

City Count, LLC.
www.citycount.com

Turning Movement Count Report PM

Location ID: 3
North/South: Figueroa Street
East/West: 6th Street

Date: 01/28/15
City: Los Angeles, CA

	Southbound			*Westbound*			*Northbound*			*Eastbound*			
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	Totals:
Movements:	R	T	L	R	T	L	R	T	L	R	T	L	
16:00	0	0	0	0	0	0	34	429	0	0	262	81	806
16:15	0	0	0	0	0	0	23	489	0	0	263	65	840
16:30	0	0	0	0	0	0	34	482	0	0	299	93	908
16:45	0	0	0	0	0	0	29	503	0	0	303	103	938
17:00	0	0	0	0	0	0	34	523	0	0	242	69	868
17:15	0	0	0	0	0	0	37	541	0	0	276	88	942
17:30	0	0	0	0	0	0	28	543	0	0	305	95	971
17:45	0	0	0	0	0	0	33	536	0	0	270	81	920
18:00	0	0	0	0	0	0	32	561	0	0	246	81	920
18:15	0	0	0	0	0	0	31	524	0	0	283	71	909
18:30	0	0	0	0	0	0	25	489	0	0	275	72	861
18:45	0	0	0	0	0	0	16	515	0	0	274	73	878

Total Volume:	0	0	0	0	0	0	356	6135	0	0	3298	972	10761
Approach %	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	5%	95%	0%	0%	77%	23%	

Peak Hr Begin:	17:15												
PHV	0	0	0	0	0	0	130	2181	0	0	1097	345	3753
PHF	#DIV/0!			#DIV/0!			0.974			0.901			0.966

City Count, LLC.
www.citycount.com

Pedestrian/Bicycle Count Report

	Pedestrians			
Leg:	North	East	South	West
7:00	30	60	26	32
7:15	33	89	22	25
7:30	24	101	27	36
7:45	40	132	39	40
8:00	33	162	58	63
8:15	22	143	51	51
8:30	45	153	59	66
8:45	48	118	65	62
9:00	42	110	54	69
9:15	30	70	33	31
9:30	26	82	35	32
9:45	23	94	40	40

	Bicycle			
Leg:	North	East	South	West
7:00	0	4	0	0
7:15	1	7	0	0
7:30	1	6	0	0
7:45	0	4	0	2
8:00	0	7	0	0
8:15	1	7	0	0
8:30	0	4	0	0
8:45	0	10	0	0
9:00	0	6	0	0
9:15	0	5	0	0
9:30	2	3	0	1
9:45	0	7	0	1

	Pedestrians			
Leg:	North	East	South	West
16:00	52	114	59	31
16:15	40	112	35	30
16:30	39	76	49	46
16:45	37	114	62	48
17:00	67	158	39	50
17:15	59	126	54	45
17:30	44	210	59	49
17:45	32	141	43	40
18:00	57	269	64	51
18:15	36	210	59	48
18:30	32	280	40	43
18:45	48	220	27	36

	Bicycle			
Leg:	North	East	South	West
16:00	1	6	0	1
16:15	0	5	1	0
16:30	1	9	0	1
16:45	1	6	0	2
17:00	0	8	0	0
17:15	0	8	0	1
17:30	0	4	0	0
17:45	6	5	0	1
18:00	0	4	0	0
18:15	0	9	0	0
18:30	1	4	0	1
18:45	0	7	0	0

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	676	2095	0	0	69	0
Future Volume (veh/h)	676	2095	0	0	69	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	735	2277			75	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4904			0	0
Arrive On Green	0.76	0.76			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2277			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	11.7				
Cycle Q Clear(g_c), s	0.0	11.7				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4904				
V/C Ratio(X)	0.00	0.46				
Avail Cap(c_a), veh/h	0	4904				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	3.9				
Incr Delay (d2), s/veh	0.0	0.3				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	4.6				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.3				
LnGrp LOS	A	A				
Approach Vol, veh/h		2277				
Approach Delay, s/veh		4.3				
Approach LOS		A				

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	73.0
Change Period (Y+Rc), s	* 4.4
Max Green Setting (Gmax), s	* 69
Max Q Clear Time (g_c+I1), s	13.7
Green Ext Time (p_c), s	51.9

Intersection Summary	
HCM 6th Ctrl Delay	4.3
HCM 6th LOS	A

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	250	2168	0	0	184	0
Future Volume (veh/h)	250	2168	0	0	184	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	272	2357			200	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4618			0	0
Arrive On Green	0.72	0.72			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2357			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	14.7				
Cycle Q Clear(g_c), s	0.0	14.7				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4618				
V/C Ratio(X)	0.00	0.51				
Avail Cap(c_a), veh/h	0	4618				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	5.7				
Incr Delay (d2), s/veh	0.0	0.4				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	6.1				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	6.1				
LnGrp LOS	A	A				
Approach Vol, veh/h		2357				
Approach Delay, s/veh		6.1				
Approach LOS		A				

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	69.0
Change Period (Y+Rc), s	* 4.4
Max Green Setting (Gmax), s	* 65
Max Q Clear Time (g_c+I1), s	16.7
Green Ext Time (p_c), s	46.0

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	676	2188	0	0	69	0
Future Volume (veh/h)	676	2188	0	0	69	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	735	2378			75	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4904			0	0
Arrive On Green	0.76	0.76			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2378			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	12.5				
Cycle Q Clear(g_c), s	0.0	12.5				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4904				
V/C Ratio(X)	0.00	0.48				
Avail Cap(c_a), veh/h	0	4904				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	4.0				
Incr Delay (d2), s/veh	0.0	0.3				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	4.8				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.4				
LnGrp LOS	A	A				
Approach Vol, veh/h		2378				
Approach Delay, s/veh		4.4				
Approach LOS		A				

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	73.0
Change Period (Y+Rc), s	* 4.4
Max Green Setting (Gmax), s	* 69
Max Q Clear Time (g_c+I1), s	14.5
Green Ext Time (p_c), s	51.8

Intersection Summary	
HCM 6th Ctrl Delay	4.4
HCM 6th LOS	A

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	250	2328	0	0	184	0
Future Volume (veh/h)	250	2328	0	0	184	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	272	2530			200	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4690			0	0
Arrive On Green	0.73	0.73			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2530			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	15.8				
Cycle Q Clear(g_c), s	0.0	15.8				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4690				
V/C Ratio(X)	0.00	0.54				
Avail Cap(c_a), veh/h	0	4690				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	5.5				
Incr Delay (d2), s/veh	0.0	0.4				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	6.4				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.9				
LnGrp LOS	A	A				
Approach Vol, veh/h		2530				
Approach Delay, s/veh		5.9				
Approach LOS		A				

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	70.0
Change Period (Y+Rc), s	* 4.4
Max Green Setting (Gmax), s	* 66
Max Q Clear Time (g_c+I1), s	17.8
Green Ext Time (p_c), s	46.6

Intersection Summary	
HCM 6th Ctrl Delay	5.9
HCM 6th LOS	A

Notes

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

Lane Group	EBT	NBT	NBR	SEL2	SEL	NER
Lane Group Flow (vph)	614	2447	218	241	953	692
v/c Ratio	0.69	0.75	0.31	0.31	0.62	0.52
Control Delay	23.1	23.3	17.7	14.7	19.2	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.1	23.3	17.7	14.7	19.2	17.9
Queue Length 50th (ft)	255	285	76	81	203	145
Queue Length 95th (ft)	377	325	130	137	268	199
Internal Link Dist (ft)	196	186			201	
Turn Bay Length (ft)						
Base Capacity (vph)	910	3277	694	793	1580	1362
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	0.67	0.75	0.31	0.30	0.60	0.51

Intersection Summary

Lane Group	EBT	NBT	NBR	SEL2	SEL	NER
Lane Group Flow (vph)	435	2921	161	359	722	489
v/c Ratio	0.60	0.74	0.19	0.57	0.57	0.45
Control Delay	26.2	18.2	11.3	25.1	23.5	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	18.2	11.3	25.1	23.5	22.1
Queue Length 50th (ft)	193	302	42	165	170	114
Queue Length 95th (ft)	292	340	77	263	230	163
Internal Link Dist (ft)	159	186			112	
Turn Bay Length (ft)						
Base Capacity (vph)	724	3939	832	633	1259	1083
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	0.60	0.74	0.19	0.57	0.57	0.45

Intersection Summary

Lane Group	EBT	NBT	NBR	SEL2	SEL	NER
Lane Group Flow (vph)	614	2457	218	241	992	724
v/c Ratio	0.69	0.76	0.32	0.31	0.64	0.54
Control Delay	22.8	23.7	17.8	14.6	19.4	18.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	23.7	17.8	14.6	19.4	18.1
Queue Length 50th (ft)	255	287	76	81	215	154
Queue Length 95th (ft)	377	326	130	137	284	210
Internal Link Dist (ft)	196	186			201	
Turn Bay Length (ft)						
Base Capacity (vph)	910	3249	688	793	1580	1362
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	0.67	0.76	0.32	0.30	0.63	0.53

Intersection Summary

Lane Group	EBT	NBT	NBR	SEL2	SEL	NER
Lane Group Flow (vph)	435	2939	161	384	764	541
v/c Ratio	0.60	0.75	0.19	0.61	0.61	0.50
Control Delay	26.2	18.3	11.3	26.2	24.1	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	18.3	11.3	26.2	24.1	22.8
Queue Length 50th (ft)	193	305	42	181	184	130
Queue Length 95th (ft)	292	343	77	287	247	182
Internal Link Dist (ft)	159	186			112	
Turn Bay Length (ft)						
Base Capacity (vph)	724	3939	832	633	1259	1083
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	0.60	0.75	0.19	0.61	0.61	0.50

Intersection Summary

Appendix F

Levels of Service Worksheets

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	14	0	98	212	95	49	84	457	0	0	317	17
Future Volume (veh/h)	14	0	98	212	95	49	84	457	0	0	317	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h	15	0	107	230	103	53	91	497	0	0	345	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	557	364	187	607	1939	0	0	1875	97
Arrive On Green	0.00	0.00	0.00	0.31	0.31	0.31	0.18	0.18	0.00	0.00	0.55	0.55
Sat Flow, veh/h		0		1781	1164	599	1019	3647	0	0	3530	179
Grp Volume(v), veh/h		0.0		230	0	156	91	497	0	0	178	185
Grp Sat Flow(s),veh/h/ln				1781	0	1763	1019	1777	0	0	1777	1838
Q Serve(g_s), s				7.1	0.0	4.7	5.4	8.4	0.0	0.0	3.5	3.6
Cycle Q Clear(g_c), s				7.1	0.0	4.7	9.0	8.4	0.0	0.0	3.5	3.6
Prop In Lane				1.00		0.34	1.00		0.00	0.00		0.10
Lane Grp Cap(c), veh/h				557	0	551	607	1939	0	0	970	1003
V/C Ratio(X)				0.41	0.00	0.28	0.15	0.26	0.00	0.00	0.18	0.18
Avail Cap(c_a), veh/h				557	0	551	607	1939	0	0	970	1003
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				19.0	0.0	18.1	18.2	16.5	0.0	0.0	8.0	8.0
Incr Delay (d2), s/veh				2.3	0.0	1.3	0.5	0.3	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				4.9	0.0	3.5	2.6	5.6	0.0	0.0	2.3	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.2	0.0	19.4	18.8	16.8	0.0	0.0	8.4	8.4
LnGrp LOS				C	A	B	B	B	A	A	A	A
Approach Vol, veh/h					386			588			363	
Approach Delay, s/veh					20.5			17.1			8.4	
Approach LOS					C			B			A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		43.0		27.0		43.0
Change Period (Y+Rc), s		* 4.8		* 5.1		* 4.8
Max Green Setting (Gmax), s		* 23		* 22		* 23
Max Q Clear Time (g_c+I1), s		5.6		9.1		11.0
Green Ext Time (p_c), s		1.9		1.9		3.0

Intersection Summary			
HCM 6th Ctrl Delay			15.7
HCM 6th LOS			B

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	48	26	125	411	397	307
Future Volume (veh/h)	48	26	125	411	397	307
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	28	136	447	432	334
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	100	89	629	2871	1511	1281
Arrive On Green	0.06	0.06	0.81	0.81	0.81	0.81
Sat Flow, veh/h	1781	1585	702	3647	1870	1585
Grp Volume(v), veh/h	52	28	136	447	432	334
Grp Sat Flow(s),veh/h/ln	1781	1585	702	1777	1870	1585
Q Serve(g_s), s	2.0	1.2	4.2	1.9	4.0	3.6
Cycle Q Clear(g_c), s	2.0	1.2	8.2	1.9	4.0	3.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	100	89	629	2871	1511	1281
V/C Ratio(X)	0.52	0.31	0.22	0.16	0.29	0.26
Avail Cap(c_a), veh/h	344	306	629	2871	1511	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.96	0.96
Uniform Delay (d), s/veh	32.1	31.7	2.7	1.5	1.7	1.6
Incr Delay (d2), s/veh	4.1	2.0	0.8	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.7	0.9	0.8	0.5	0.9	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.2	33.7	3.5	1.6	1.8	1.7
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	80			583	766	
Approach Delay, s/veh	35.3			2.0	1.8	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		61.6		8.4		61.6
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		47.0		13.5		47.0
Max Q Clear Time (g_c+I1), s		10.2		4.0		6.0
Green Ext Time (p_c), s		4.7		0.1		4.4

Intersection Summary			
HCM 6th Ctrl Delay			3.8
HCM 6th LOS			A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	115	1281	72	59	294	0	0	885	309
Future Volume (veh/h)	0	0	0	115	1281	72	59	294	0	0	885	309
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				125	1392	78	64	320	0	0	962	336
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				875	1745	778	151	1398	0	0	1398	623
Arrive On Green				0.16	0.16	0.16	0.79	0.79	0.00	0.00	0.39	0.39
Sat Flow, veh/h				1781	3554	1585	425	3647	0	0	3647	1585
Grp Volume(v), veh/h				125	1392	78	64	320	0	0	962	336
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	425	1777	0	0	1777	1585
Q Serve(g_s), s				5.4	33.9	3.8	12.9	2.1	0.0	0.0	20.3	14.7
Cycle Q Clear(g_c), s				5.4	33.9	3.8	33.2	2.1	0.0	0.0	20.3	14.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				875	1745	778	151	1398	0	0	1398	623
V/C Ratio(X)				0.14	0.80	0.10	0.42	0.23	0.00	0.00	0.69	0.54
Avail Cap(c_a), veh/h				875	1745	778	154	1421	0	0	1421	634
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.61	0.61	0.61	0.77	0.77	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.5	33.4	20.8	19.0	6.0	0.0	0.0	22.7	21.0
Incr Delay (d2), s/veh				0.2	2.4	0.2	1.4	0.1	0.0	0.0	1.4	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				3.6	19.9	2.4	1.9	1.3	0.0	0.0	11.4	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.7	35.8	20.9	20.4	6.1	0.0	0.0	24.1	21.9
LnGrp LOS				C	D	C	C	A	A	A	C	C
Approach Vol, veh/h					1595			384			1298	
Approach Delay, s/veh					34.0			8.5			23.5	
Approach LOS					C			A			C	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		49.6		40.4				40.4				
Change Period (Y+Rc), s		* 5.4		* 5				* 5				
Max Green Setting (Gmax), s		* 44		* 36				* 36				
Max Q Clear Time (g_c+I1), s		35.9		35.2				22.3				
Green Ext Time (p_c), s		5.6		0.2				6.8				

Intersection Summary		
HCM 6th Ctrl Delay		26.9
HCM 6th LOS		C

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	16	1198	50	93	357	0	0	240	219
Future Volume (vph)	0	0	0	16	1198	50	93	357	0	0	240	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.99			1.00			1.00	0.85
Flt Protected				0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)				1770	5055			3503			1863	1583
Flt Permitted				0.95	1.00			0.82			1.00	1.00
Satd. Flow (perm)				1770	5055			2903			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	17	1302	54	101	388	0	0	261	238
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	0	106
Lane Group Flow (vph)	0	0	0	17	1351	0	0	489	0	0	261	132
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				29.6	29.6			50.0			50.0	50.0
Effective Green, g (s)				29.6	29.6			50.0			50.0	50.0
Actuated g/C Ratio				0.33	0.33			0.56			0.56	0.56
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				582	1662			1612			1035	879
v/s Ratio Prot					c0.27						0.14	
v/s Ratio Perm				0.01				c0.17				0.08
v/c Ratio				0.03	0.81			0.30			0.25	0.15
Uniform Delay, d1				20.5	27.7			10.7			10.3	9.7
Progression Factor				1.00	1.00			0.75			1.00	1.00
Incremental Delay, d2				0.1	4.5			0.1			0.6	0.4
Delay (s)				20.6	32.1			8.1			10.9	10.1
Level of Service				C	C			A			B	B
Approach Delay (s)		0.0			32.0			8.1			10.5	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	63.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	534	1162	0	0	46	0
Future Volume (veh/h)	534	1162	0	0	46	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	580	1263			50	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4547			0	0
Arrive On Green	0.71	0.71			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	1263			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	6.4				
Cycle Q Clear(g_c), s	0.0	6.4				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4547				
V/C Ratio(X)	0.00	0.28				
Avail Cap(c_a), veh/h	0	4547				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	4.8				
Incr Delay (d2), s/veh	0.0	0.2				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	3.2				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.0				
LnGrp LOS	A	A				
Approach Vol, veh/h		1263				
Approach Delay, s/veh		5.0				
Approach LOS		A				

Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						68.0
Change Period (Y+Rc), s						* 4.4
Max Green Setting (Gmax), s						* 64
Max Q Clear Time (g_c+I1), s						8.4
Green Ext Time (p_c), s						32.5

Intersection Summary		
HCM 6th Ctrl Delay		5.0
HCM 6th LOS		A

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	162	705	167	0	0	0	0	494	92	43	186	0
Future Volume (veh/h)	162	705	167	0	0	0	0	494	92	43	186	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	176	766	182				0	537	100	47	202	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	664	2399	591				0	1346	600	148	908	0
Arrive On Green	0.37	0.37	0.37				0.00	0.38	0.38	0.04	0.49	0.00
Sat Flow, veh/h	1781	6434	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	176	766	182				0	537	100	47	202	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	4.8	5.9	5.7				0.0	7.7	2.9	0.9	4.4	0.0
Cycle Q Clear(g_c), s	4.8	5.9	5.7				0.0	7.7	2.9	0.9	4.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	664	2399	591				0	1346	600	148	908	0
V/C Ratio(X)	0.26	0.32	0.31				0.00	0.40	0.17	0.32	0.22	0.00
Avail Cap(c_a), veh/h	664	2399	591				0	1346	600	272	908	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98				0.00	0.72	0.72	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.3	15.6	15.6				0.0	15.9	14.4	32.5	10.4	0.0
Incr Delay (d2), s/veh	1.0	0.3	1.3				0.0	0.6	0.4	1.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.4	3.6	3.6				0.0	4.6	1.9	0.7	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	16.0	16.9				0.0	16.6	14.9	33.7	10.9	0.0
LnGrp LOS	B	B	B				A	B	B	C	B	A
Approach Vol, veh/h		1124						637			249	
Approach Delay, s/veh		16.2						16.3			15.2	
Approach LOS		B						B			B	
Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		31.0	7.5	31.5				39.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		26.1	5.5	24.0				34.0				
Max Q Clear Time (g_c+I1), s		7.9	2.9	9.7				6.4				
Green Ext Time (p_c), s		6.3	0.0	3.4				1.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	93	610	153	0	0	0	0	303	78	78	857	0
Future Volume (veh/h)	93	610	153	0	0	0	0	303	78	78	857	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	101	663	166				0	329	85	85	932	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	355	2507	625				0	519	134	248	1288	0
Arrive On Green	0.52	0.52	0.52				0.00	0.36	0.36	0.72	0.72	0.00
Sat Flow, veh/h	684	4822	1202				0	1433	370	972	3647	0
Grp Volume(v), veh/h	271	430	228				0	0	414	85	932	0
Grp Sat Flow(s),veh/h/ln	1836	1609	1654				0	0	1804	972	1777	0
Q Serve(g_s), s	7.5	6.7	6.9				0.0	0.0	17.1	6.2	13.7	0.0
Cycle Q Clear(g_c), s	7.5	6.7	6.9				0.0	0.0	17.1	23.3	13.7	0.0
Prop In Lane	0.37		0.73				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	955	1673	860				0	0	654	248	1288	0
V/C Ratio(X)	0.28	0.26	0.27				0.00	0.00	0.63	0.34	0.72	0.00
Avail Cap(c_a), veh/h	955	1673	860				0	0	918	390	1808	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	0.84	0.69	0.69	0.00
Uniform Delay (d), s/veh	12.2	12.0	12.0				0.0	0.0	23.7	17.9	9.8	0.0
Incr Delay (d2), s/veh	0.7	0.4	0.8				0.0	0.0	0.9	0.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	4.9	3.9	4.3				0.0	0.0	9.7	2.0	4.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	12.3	12.8				0.0	0.0	24.6	18.5	10.4	0.0
LnGrp LOS	B	B	B				A	A	C	B	B	A
Approach Vol, veh/h		930						414			1017	
Approach Delay, s/veh		12.6						24.6			11.1	
Approach LOS		B						C			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				37.8		52.2		37.8				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 46		33.6		* 46				
Max Q Clear Time (g_c+I1), s				25.3		9.5		19.1				
Green Ext Time (p_c), s				7.3		6.5		2.8				

Intersection Summary			
HCM 6th Ctrl Delay			14.1
HCM 6th LOS			B

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	107	530	60	0	0	0	0	408	42	1	271	0
Future Volume (veh/h)	107	530	60	0	0	0	0	408	42	1	271	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	116	576	65				0	443	46	1	295	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	363	1956	221				0	1636	169	41	941	0
Arrive On Green	0.12	0.12	0.12				0.00	0.50	0.50	1.00	1.00	0.00
Sat Flow, veh/h	972	5239	592				0	3344	336	1	1869	0
Grp Volume(v), veh/h	217	346	194				0	241	248	296	0	0
Grp Sat Flow(s),veh/h/ln	1822	1609	1764				0	1777	1810	1870	0	0
Q Serve(g_s), s	9.8	8.8	9.0				0.0	7.0	7.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	9.8	8.8	9.0				0.0	7.0	7.1	0.0	0.0	0.0
Prop In Lane	0.53		0.34				0.00		0.19	0.00		0.00
Lane Grp Cap(c), veh/h	680	1201	659				0	894	911	981	0	0
V/C Ratio(X)	0.32	0.29	0.29				0.00	0.27	0.27	0.30	0.00	0.00
Avail Cap(c_a), veh/h	680	1201	659				0	894	911	981	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.96	0.96	0.96				0.00	1.00	1.00	0.98	0.00	0.00
Uniform Delay (d), s/veh	29.0	28.6	28.7				0.0	12.8	12.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.6	1.1				0.0	0.7	0.7	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	7.1	5.7	6.4				0.0	4.6	4.7	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	29.2	29.8				0.0	13.6	13.6	0.8	0.0	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		757						489			296	
Approach Delay, s/veh		29.6						13.6			0.8	
Approach LOS		C						B			A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		39.0		51.0				51.0				
Change Period (Y+Rc), s		* 5.4		5.7				5.7				
Max Green Setting (Gmax), s		* 34		45.3				45.3				
Max Q Clear Time (g_c+I1), s		11.8		2.0				9.1				
Green Ext Time (p_c), s		4.9		1.9				3.2				

Intersection Summary			
HCM 6th Ctrl Delay			19.0
HCM 6th LOS			B

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1098	92	401	620	0	0	0	150
Future Volume (vph)	0	0	0	0	1098	92	401	620	0	0	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		5.4	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.99		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6334		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6334		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1193	100	436	674	0	0	0	163
RTOR Reduction (vph)	0	0	0	0	11	0	99	0	0	0	0	136
Lane Group Flow (vph)	0	0	0	0	1282	0	337	674	0	0	0	27
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					49.4		18.5	18.5				6.8
Effective Green, g (s)					49.4		18.5	18.5				6.8
Actuated g/C Ratio					0.55		0.21	0.21				0.08
Clearance Time (s)					5.4		5.4	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					3476		705	1045				210
v/s Ratio Prot					c0.20		0.10	c0.13				
v/s Ratio Perm												c0.01
v/c Ratio					0.37		0.48	0.64				0.13
Uniform Delay, d1					11.5		31.5	32.7				38.8
Progression Factor					0.74		1.00	1.00				1.00
Incremental Delay, d2					0.3		0.5	1.4				0.3
Delay (s)					8.8		32.0	34.1				39.1
Level of Service					A		C	C				D
Approach Delay (s)		0.0			8.8			33.3			39.1	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	63	880	105	66	299	0	0	736	202
Future Volume (veh/h)	0	0	0	63	880	105	66	299	0	0	736	202
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				68	957	114	72	325	0	0	800	220
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				933	3079	363	174	668	0	0	1270	566
Arrive On Green				0.52	0.52	0.52	0.36	0.36	0.00	0.00	0.36	0.36
Sat Flow, veh/h				1781	5879	693	553	1870	0	0	3647	1585
Grp Volume(v), veh/h				68	784	287	72	325	0	0	800	220
Grp Sat Flow(s),veh/h/ln				1781	1609	1746	553	1870	0	0	1777	1585
Q Serve(g_s), s				1.7	8.3	8.4	11.2	12.2	0.0	0.0	16.8	9.3
Cycle Q Clear(g_c), s				1.7	8.3	8.4	28.0	12.2	0.0	0.0	16.8	9.3
Prop In Lane				1.00		0.40	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				933	2528	914	174	668	0	0	1270	566
V/C Ratio(X)				0.07	0.31	0.31	0.41	0.49	0.00	0.00	0.63	0.39
Avail Cap(c_a), veh/h				933	2528	914	239	887	0	0	1686	752
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.64	0.64
Uniform Delay (d), s/veh				10.6	12.2	12.2	35.6	22.5	0.0	0.0	24.0	21.6
Incr Delay (d2), s/veh				0.2	0.3	0.9	1.6	0.5	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				1.2	4.7	5.2	2.8	7.7	0.0	0.0	9.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				10.8	12.5	13.1	37.2	23.0	0.0	0.0	24.3	21.9
LnGrp LOS				B	B	B	D	C	A	A	C	C
Approach Vol, veh/h					1139			397			1020	
Approach Delay, s/veh					12.6			25.6			23.8	
Approach LOS					B			C			C	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		52.5		37.5				37.5				
Change Period (Y+Rc), s		* 5.4		* 5.3				* 5.3				
Max Green Setting (Gmax), s		* 37		* 43				* 43				
Max Q Clear Time (g_c+I1), s		10.4		18.8				30.0				
Green Ext Time (p_c), s		8.5		6.9				2.2				

Intersection Summary		
HCM 6th Ctrl Delay		19.1
HCM 6th LOS		B

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	65	0	63	62	59	17	183	1345	0	0	115	12
Future Volume (veh/h)	65	0	63	62	59	17	183	1345	0	0	115	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h	71	0	68	67	64	18	199	1462	0	0	125	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	107	111	32	1097	4188	0	0	2668	274
Arrive On Green	0.00	0.00	0.00	0.07	0.07	0.07	1.00	1.00	0.00	0.00	0.82	0.82
Sat Flow, veh/h		0		1540	1589	454	1251	5274	0	0	3347	334
Grp Volume(v), veh/h		0.0		78	0	71	199	1462	0	0	68	70
Grp Sat Flow(s),veh/h/ln				1793	0	1789	1251	1702	0	0	1777	1810
Q Serve(g_s), s				3.8	0.0	3.5	0.2	0.0	0.0	0.0	0.6	0.7
Cycle Q Clear(g_c), s				3.8	0.0	3.5	0.8	0.0	0.0	0.0	0.6	0.7
Prop In Lane				0.86		0.25	1.00		0.00	0.00		0.18
Lane Grp Cap(c), veh/h				125	0	125	1097	4188	0	0	1457	1485
V/C Ratio(X)				0.62	0.00	0.57	0.18	0.35	0.00	0.00	0.05	0.05
Avail Cap(c_a), veh/h				416	0	415	1097	4188	0	0	1457	1485
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				40.7	0.0	40.6	0.0	0.0	0.0	0.0	1.5	1.5
Incr Delay (d2), s/veh				5.0	0.0	4.0	0.3	0.2	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				3.2	0.0	3.0	0.2	0.1	0.0	0.0	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				45.7	0.0	44.6	0.3	0.2	0.0	0.0	1.6	1.6
LnGrp LOS				D	A	D	A	A	A	A	A	A
Approach Vol, veh/h					149			1661			138	
Approach Delay, s/veh					45.2			0.2			1.6	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	78.6	11.4	78.6
Change Period (Y+Rc), s	* 4.8	* 5.1	* 4.8
Max Green Setting (Gmax), s	* 45	* 21	* 45
Max Q Clear Time (g_c+I1), s	2.7	5.8	2.8
Green Ext Time (p_c), s	0.8	0.6	16.9

Intersection Summary	
HCM 6th Ctrl Delay	3.8
HCM 6th LOS	A

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	244	46	84	995	98	77
Future Volume (veh/h)	244	46	84	995	98	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	50	91	1082	107	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	314	280	936	3667	1343	1138
Arrive On Green	0.18	0.18	0.72	0.72	1.00	1.00
Sat Flow, veh/h	1781	1585	1192	5274	1870	1585
Grp Volume(v), veh/h	265	50	91	1082	107	84
Grp Sat Flow(s),veh/h/ln	1781	1585	1192	1702	1870	1585
Q Serve(g_s), s	13.0	2.4	2.1	6.8	0.0	0.0
Cycle Q Clear(g_c), s	13.0	2.4	2.1	6.8	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	314	280	936	3667	1343	1138
V/C Ratio(X)	0.84	0.18	0.10	0.30	0.08	0.07
Avail Cap(c_a), veh/h	742	660	936	3667	1343	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.99	0.99
Uniform Delay (d), s/veh	35.9	31.5	3.9	4.5	0.0	0.0
Incr Delay (d2), s/veh	6.1	0.3	0.2	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	8.6	1.7	0.8	3.4	0.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	31.8	4.1	4.7	0.1	0.1
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	315			1173	191	
Approach Delay, s/veh	40.4			4.7	0.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		69.6		20.4		69.6
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		43.0		37.5		43.0
Max Q Clear Time (g_c+I1), s		8.8		15.0		2.0
Green Ext Time (p_c), s		10.0		0.9		0.9

Intersection Summary		
HCM 6th Ctrl Delay		10.9
HCM 6th LOS		B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	118	991	128	66	504	0	0	798	260
Future Volume (veh/h)	0	0	0	118	991	128	66	504	0	0	798	260
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				128	1077	139	72	548	0	0	867	283
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				894	1784	796	169	1359	0	0	1359	606
Arrive On Green				0.17	0.17	0.17	0.76	0.76	0.00	0.00	0.38	0.38
Sat Flow, veh/h				1781	3554	1585	489	3647	0	0	3647	1585
Grp Volume(v), veh/h				128	1077	139	72	548	0	0	867	283
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	489	1777	0	0	1777	1585
Q Serve(g_s), s				5.5	25.3	6.8	11.9	4.7	0.0	0.0	17.9	12.1
Cycle Q Clear(g_c), s				5.5	25.3	6.8	29.9	4.7	0.0	0.0	17.9	12.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				894	1784	796	169	1359	0	0	1359	606
V/C Ratio(X)				0.14	0.60	0.17	0.42	0.40	0.00	0.00	0.64	0.47
Avail Cap(c_a), veh/h				894	1784	796	194	1540	0	0	1540	687
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.81	0.81	0.81	0.76	0.76	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.0	29.2	21.5	18.1	7.1	0.0	0.0	22.7	20.9
Incr Delay (d2), s/veh				0.3	1.2	0.4	1.3	0.1	0.0	0.0	0.7	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				3.9	15.5	4.2	2.0	2.5	0.0	0.0	10.1	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.3	30.5	21.9	19.4	7.2	0.0	0.0	23.4	21.5
LnGrp LOS				C	C	C	B	A	A	A	C	C
Approach Vol, veh/h					1344			620			1150	
Approach Delay, s/veh					28.7			8.7			23.0	
Approach LOS					C			A			C	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		50.6		39.4				39.4				
Change Period (Y+Rc), s		* 5.4		* 5				* 5				
Max Green Setting (Gmax), s		* 41		* 39				* 39				
Max Q Clear Time (g_c+I1), s		27.3		31.9				19.9				
Green Ext Time (p_c), s		7.0		2.6				7.1				
Intersection Summary												
HCM 6th Ctrl Delay			22.6									
HCM 6th LOS			C									

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	51	865	153	78	730	0	0	314	111
Future Volume (vph)	0	0	0	51	865	153	78	730	0	0	314	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.98			1.00			1.00	0.85
Flt Protected				0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)				1770	4971			3522			1863	1583
Flt Permitted				0.95	1.00			0.87			1.00	1.00
Satd. Flow (perm)				1770	4971			3081			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	55	940	166	85	793	0	0	341	121
RTOR Reduction (vph)	0	0	0	0	28	0	0	0	0	0	0	58
Lane Group Flow (vph)	0	0	0	55	1078	0	0	878	0	0	341	63
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				32.6	32.6			47.0			47.0	47.0
Effective Green, g (s)				32.6	32.6			47.0			47.0	47.0
Actuated g/C Ratio				0.36	0.36			0.52			0.52	0.52
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				641	1800			1608			972	826
v/s Ratio Prot					c0.22						0.18	
v/s Ratio Perm				0.03				c0.28				0.04
v/c Ratio				0.09	0.60			0.55			0.35	0.08
Uniform Delay, d1				18.9	23.4			14.4			12.6	10.7
Progression Factor				1.00	1.00			1.03			1.00	1.00
Incremental Delay, d2				0.3	1.5			0.3			1.0	0.2
Delay (s)				19.2	24.9			15.2			13.6	10.9
Level of Service				B	C			B			B	B
Approach Delay (s)		0.0			24.6			15.2			12.9	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	126	1056	0	0	132	0
Future Volume (veh/h)	126	1056	0	0	132	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	137	1148			143	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4046			0	0
Arrive On Green	0.63	0.63			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	1148			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	7.3				
Cycle Q Clear(g_c), s	0.0	7.3				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4046				
V/C Ratio(X)	0.00	0.28				
Avail Cap(c_a), veh/h	0	4046				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	7.5				
Incr Delay (d2), s/veh	0.0	0.2				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	3.8				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.7				
LnGrp LOS	A	A				
Approach Vol, veh/h		1148				
Approach Delay, s/veh		7.7				
Approach LOS		A				

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	61.0
Change Period (Y+Rc), s	* 4.4
Max Green Setting (Gmax), s	* 57
Max Q Clear Time (g_c+I1), s	9.3
Green Ext Time (p_c), s	26.6

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	185	915	105	0	0	0	0	1091	206	83	149	0
Future Volume (veh/h)	185	915	105	0	0	0	0	1091	206	83	149	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	201	995	114				0	1186	224	90	162	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	556	2009	495				0	2062	389	172	1081	0
Arrive On Green	0.10	0.10	0.10				0.00	0.48	0.48	0.05	0.58	0.00
Sat Flow, veh/h	1781	6434	1585				0	4482	815	3456	1870	0
Grp Volume(v), veh/h	201	995	114				0	936	474	90	162	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1702	1724	1728	1870	0
Q Serve(g_s), s	9.5	13.2	5.9				0.0	17.8	17.8	2.3	3.6	0.0
Cycle Q Clear(g_c), s	9.5	13.2	5.9				0.0	17.8	17.8	2.3	3.6	0.0
Prop In Lane	1.00		1.00				0.00		0.47	1.00		0.00
Lane Grp Cap(c), veh/h	556	2009	495				0	1627	824	172	1081	0
V/C Ratio(X)	0.36	0.50	0.23				0.00	0.58	0.58	0.52	0.15	0.00
Avail Cap(c_a), veh/h	556	2009	495				0	1627	824	288	1081	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98				0.00	0.65	0.65	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.0	33.7	30.4				0.0	16.9	16.9	41.7	8.8	0.0
Incr Delay (d2), s/veh	1.8	0.9	1.1				0.0	1.0	1.9	2.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	6.9	8.2	4.1				0.0	9.0	9.3	1.8	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.8	34.5	31.5				0.0	17.9	18.8	44.2	9.1	0.0
LnGrp LOS	C	C	C				A	B	B	D	A	A
Approach Vol, veh/h		1310						1410			252	
Approach Delay, s/veh		34.1						18.2			21.6	
Approach LOS		C						B			C	
Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		33.0	9.0	48.0				57.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		28.1	7.5	40.0				52.0				
Max Q Clear Time (g_c+I1), s		15.2	4.3	19.8				5.6				
Green Ext Time (p_c), s		6.5	0.1	10.2				1.0				
Intersection Summary												
HCM 6th Ctrl Delay			25.5									
HCM 6th LOS			C									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	46	987	161	0	0	0	0	611	98	107	809	0
Future Volume (veh/h)	46	987	161	0	0	0	0	611	98	107	809	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	50	1073	175				0	664	107	116	879	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	89	2029	337				0	1222	197	242	1417	0
Arrive On Green	0.36	0.36	0.36				0.00	0.40	0.40	0.80	0.80	0.00
Sat Flow, veh/h	245	5602	932				0	3159	493	698	3647	0
Grp Volume(v), veh/h	380	598	320				0	385	386	116	879	0
Grp Sat Flow(s),veh/h/ln	1858	1609	1703				0	1777	1782	698	1777	0
Q Serve(g_s), s	14.8	13.1	13.3				0.0	14.9	15.0	12.0	8.9	0.0
Cycle Q Clear(g_c), s	14.8	13.1	13.3				0.0	14.9	15.0	27.0	8.9	0.0
Prop In Lane	0.13		0.55				0.00		0.28	1.00		0.00
Lane Grp Cap(c), veh/h	673	1165	617				0	708	710	242	1417	0
V/C Ratio(X)	0.56	0.51	0.52				0.00	0.54	0.54	0.48	0.62	0.00
Avail Cap(c_a), veh/h	673	1165	617				0	924	926	327	1848	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.83	0.83	0.75	0.75	0.00
Uniform Delay (d), s/veh	23.0	22.5	22.5				0.0	20.8	20.8	14.2	6.4	0.0
Incr Delay (d2), s/veh	3.4	1.6	3.1				0.0	0.5	0.5	1.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	9.6	7.4	8.1				0.0	8.4	8.4	2.5	3.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	24.1	25.6				0.0	21.3	21.3	15.3	6.7	0.0
LnGrp LOS	C	C	C				A	C	C	B	A	A
Approach Vol, veh/h		1298						771			995	
Approach Delay, s/veh		25.2						21.3			7.7	
Approach LOS		C						C			A	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				41.1		38.0		41.1				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 47		32.6		* 47				
Max Q Clear Time (g_c+I1), s				29.0		16.8		17.0				
Green Ext Time (p_c), s				6.9		7.8		5.5				

Intersection Summary			
HCM 6th Ctrl Delay			18.5
HCM 6th LOS			B

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	158	1023	92	0	0	0	0	724	65	3	339	0
Future Volume (veh/h)	158	1023	92	0	0	0	0	724	65	3	339	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	172	1112	100				0	787	71	3	368	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	250	1744	159				0	1850	167	42	1045	0
Arrive On Green	0.10	0.10	0.10				0.00	0.56	0.56	0.19	0.19	0.00
Sat Flow, veh/h	792	5530	505				0	3390	297	3	1862	0
Grp Volume(v), veh/h	397	634	352				0	424	434	371	0	0
Grp Sat Flow(s),veh/h/ln	1831	1609	1779				0	1777	1817	1865	0	0
Q Serve(g_s), s	18.9	17.0	17.1				0.0	12.4	12.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.9	17.0	17.1				0.0	12.4	12.4	15.6	0.0	0.0
Prop In Lane	0.43		0.28				0.00		0.16	0.01		0.00
Lane Grp Cap(c), veh/h	578	1015	561				0	997	1020	1087	0	0
V/C Ratio(X)	0.69	0.63	0.63				0.00	0.43	0.43	0.34	0.00	0.00
Avail Cap(c_a), veh/h	704	1237	684				0	997	1020	1087	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.91	0.91	0.91				0.00	1.00	1.00	0.96	0.00	0.00
Uniform Delay (d), s/veh	36.0	35.2	35.2				0.0	11.4	11.4	22.4	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.6	1.2				0.0	1.3	1.3	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	12.6	10.1	11.1				0.0	7.2	7.3	10.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	35.8	36.4				0.0	12.7	12.7	23.3	0.0	0.0
LnGrp LOS	D	D	D				A	B	B	C	A	A
Approach Vol, veh/h		1384						858			371	
Approach Delay, s/veh		36.6						12.7			23.3	
Approach LOS		D						B			C	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		33.8		56.2				56.2				
Change Period (Y+Rc), s		* 5.4		5.7				5.7				
Max Green Setting (Gmax), s		* 35		44.3				44.3				
Max Q Clear Time (g_c+I1), s		20.9		17.6				14.4				
Green Ext Time (p_c), s		7.5		2.4				6.2				
Intersection Summary												
HCM 6th Ctrl Delay			26.9									
HCM 6th LOS			C									

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	865	88	524	1146	0	0	0	359
Future Volume (vph)	0	0	0	0	865	88	524	1146	0	0	0	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		4.5	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.99		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6319		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6319		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	940	96	570	1246	0	0	0	390
RTOR Reduction (vph)	0	0	0	0	17	0	54	0	0	0	0	121
Lane Group Flow (vph)	0	0	0	0	1019	0	516	1246	0	0	0	269
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					29.5		32.5	31.6				13.6
Effective Green, g (s)					29.5		32.5	31.6				13.6
Actuated g/C Ratio					0.33		0.36	0.35				0.15
Clearance Time (s)					5.4		4.5	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					2071		1239	1785				421
v/s Ratio Prot					c0.16		0.15	c0.25				
v/s Ratio Perm												c0.10
v/c Ratio					0.49		0.42	0.70				0.64
Uniform Delay, d1					24.2		21.6	25.1				35.9
Progression Factor					0.81		1.00	1.00				1.23
Incremental Delay, d2					0.8		0.2	2.3				3.3
Delay (s)					20.4		21.9	27.4				47.3
Level of Service					C		C	C				D
Approach Delay (s)		0.0			20.4			25.7			47.3	
Approach LOS		A			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	80	667	126	87	596	0	0	763	122
Future Volume (veh/h)	0	0	0	80	667	126	87	596	0	0	763	122
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				87	725	137	95	648	0	0	829	133
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				846	2613	481	212	1444	0	0	1444	644
Arrive On Green				0.47	0.47	0.47	0.41	0.41	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1781	5502	1012	584	3647	0	0	3647	1585
Grp Volume(v), veh/h				87	633	229	95	648	0	0	829	133
Grp Sat Flow(s),veh/h/ln				1781	1609	1688	584	1777	0	0	1777	1585
Q Serve(g_s), s				2.4	7.1	7.4	13.5	11.9	0.0	0.0	16.3	4.9
Cycle Q Clear(g_c), s				2.4	7.1	7.4	29.8	11.9	0.0	0.0	16.3	4.9
Prop In Lane				1.00		0.60	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				846	2292	802	212	1444	0	0	1444	644
V/C Ratio(X)				0.10	0.28	0.29	0.45	0.45	0.00	0.00	0.57	0.21
Avail Cap(c_a), veh/h				846	2292	802	277	1844	0	0	1844	822
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.67	0.67
Uniform Delay (d), s/veh				13.0	14.3	14.4	32.2	19.4	0.0	0.0	20.7	17.3
Incr Delay (d2), s/veh				0.2	0.3	0.9	1.5	0.2	0.0	0.0	0.2	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				1.8	4.2	4.7	3.4	7.1	0.0	0.0	8.7	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.3	14.6	15.2	33.7	19.6	0.0	0.0	20.9	17.4
LnGrp LOS				B	B	B	C	B	A	A	C	B
Approach Vol, veh/h					949			743			962	
Approach Delay, s/veh					14.6			21.4			20.5	
Approach LOS					B			C			C	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		48.1		41.9				41.9				
Change Period (Y+Rc), s		* 5.4		* 5.3				* 5.3				
Max Green Setting (Gmax), s		* 33		* 47				* 47				
Max Q Clear Time (g_c+I1), s		9.4		18.3				31.8				
Green Ext Time (p_c), s		6.5		7.1				4.8				

Intersection Summary	
HCM 6th Ctrl Delay	18.6
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
1: Olive St & 2nd St 05/04/2020

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	14	0	98	230	98	49	111	502	0	0	332	17
Future Volume (veh/h)	14	0	98	230	98	49	111	502	0	0	332	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h	15	0	107	250	107	53	121	546	0	0	361	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	557	369	183	597	1939	0	0	1880	93
Arrive On Green	0.00	0.00	0.00	0.31	0.31	0.31	0.18	0.18	0.00	0.00	0.55	0.55
Sat Flow, veh/h		0		1781	1180	585	1004	3647	0	0	3539	171
Grp Volume(v), veh/h		0.0		250	0	160	121	546	0	0	186	193
Grp Sat Flow(s),veh/h/ln				1781	0	1765	1004	1777	0	0	1777	1840
Q Serve(g_s), s				7.9	0.0	4.8	7.4	9.3	0.0	0.0	3.7	3.7
Cycle Q Clear(g_c), s				7.9	0.0	4.8	11.1	9.3	0.0	0.0	3.7	3.7
Prop In Lane				1.00		0.33	1.00		0.00	0.00		0.09
Lane Grp Cap(c), veh/h				557	0	552	597	1939	0	0	970	1004
V/C Ratio(X)				0.45	0.00	0.29	0.20	0.28	0.00	0.00	0.19	0.19
Avail Cap(c_a), veh/h				557	0	552	597	1939	0	0	970	1004
HCM Platoon Ratio				1.00	1.00	1.00	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				19.2	0.0	18.2	19.2	16.8	0.0	0.0	8.1	8.1
Incr Delay (d2), s/veh				2.6	0.0	1.3	0.8	0.4	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				5.4	0.0	3.5	3.5	6.3	0.0	0.0	2.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.8	0.0	19.5	20.0	17.2	0.0	0.0	8.5	8.5
LnGrp LOS				C	A	B	B	B	A	A	A	A
Approach Vol, veh/h					410			667			379	
Approach Delay, s/veh					20.9			17.7			8.5	
Approach LOS					C			B			A	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	43.0	27.0	43.0
Change Period (Y+Rc), s	* 4.8	* 5.1	* 4.8
Max Green Setting (Gmax), s	* 23	* 22	* 23
Max Q Clear Time (g_c+I1), s	5.7	9.9	13.1
Green Ext Time (p_c), s	2.0	1.9	3.1

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	48	26	127	483	430	307
Future Volume (veh/h)	48	26	127	483	430	307
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	28	138	525	467	334
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	100	89	608	2871	1511	1281
Arrive On Green	0.06	0.06	0.81	0.81	0.81	0.81
Sat Flow, veh/h	1781	1585	679	3647	1870	1585
Grp Volume(v), veh/h	52	28	138	525	467	334
Grp Sat Flow(s),veh/h/ln	1781	1585	679	1777	1870	1585
Q Serve(g_s), s	2.0	1.2	4.6	2.3	4.5	3.6
Cycle Q Clear(g_c), s	2.0	1.2	9.0	2.3	4.5	3.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	100	89	608	2871	1511	1281
V/C Ratio(X)	0.52	0.31	0.23	0.18	0.31	0.26
Avail Cap(c_a), veh/h	318	283	608	2871	1511	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.95	0.95
Uniform Delay (d), s/veh	32.1	31.7	2.9	1.5	1.7	1.6
Incr Delay (d2), s/veh	4.1	2.0	0.9	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.7	0.9	0.9	0.6	1.0	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	36.2	33.7	3.7	1.7	1.8	1.7
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	80			663	801	
Approach Delay, s/veh	35.3			2.1	1.8	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		61.6		8.4		61.6
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		48.0		12.5		48.0
Max Q Clear Time (g_c+I1), s		11.0		4.0		6.5
Green Ext Time (p_c), s		5.5		0.1		4.7
Intersection Summary						
HCM 6th Ctrl Delay			3.7			
HCM 6th LOS			A			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	115	1281	83	99	299	0	0	885	309
Future Volume (veh/h)	0	0	0	115	1281	83	99	299	0	0	885	309
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				125	1392	90	108	325	0	0	962	336
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				792	1579	704	179	1564	0	0	1564	697
Arrive On Green				0.15	0.15	0.15	0.88	0.88	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1781	3554	1585	425	3647	0	0	3647	1585
Grp Volume(v), veh/h				125	1392	90	108	325	0	0	962	336
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	425	1777	0	0	1777	1585
Q Serve(g_s), s				5.5	34.5	4.4	20.9	1.2	0.0	0.0	18.7	13.6
Cycle Q Clear(g_c), s				5.5	34.5	4.4	39.6	1.2	0.0	0.0	18.7	13.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				792	1579	704	179	1564	0	0	1564	697
V/C Ratio(X)				0.16	0.88	0.13	0.60	0.21	0.00	0.00	0.62	0.48
Avail Cap(c_a), veh/h				792	1579	704	179	1564	0	0	1564	697
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.63	0.63	0.63	0.76	0.76	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.7	36.1	23.2	15.7	3.1	0.0	0.0	19.4	17.9
Incr Delay (d2), s/veh				0.3	4.9	0.2	4.4	0.0	0.0	0.0	0.7	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				3.7	20.8	2.8	3.1	0.7	0.0	0.0	10.3	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.0	41.0	23.5	20.0	3.1	0.0	0.0	20.1	18.4
LnGrp LOS				C	D	C	C	A	A	A	C	B
Approach Vol, veh/h					1607			433			1298	
Approach Delay, s/veh					38.7			7.4			19.6	
Approach LOS					D			A			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		45.4		44.6				44.6				
Change Period (Y+Rc), s		* 5.4		* 5				* 5				
Max Green Setting (Gmax), s		* 40		* 40				* 40				
Max Q Clear Time (g_c+I1), s		36.5		41.6				20.7				
Green Ext Time (p_c), s		2.8		0.0				8.1				

Intersection Summary		
HCM 6th Ctrl Delay		27.2
HCM 6th LOS		C

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	16	1209	50	93	372	0	0	240	219
Future Volume (vph)	0	0	0	16	1209	50	93	372	0	0	240	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.99			1.00			1.00	0.85
Flt Protected				0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)				1770	5055			3504			1863	1583
Flt Permitted				0.95	1.00			0.82			1.00	1.00
Satd. Flow (perm)				1770	5055			2913			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	17	1314	54	101	404	0	0	261	238
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	0	0	0	108
Lane Group Flow (vph)	0	0	0	17	1363	0	0	505	0	0	261	130
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				30.6	30.6			49.0			49.0	49.0
Effective Green, g (s)				30.6	30.6			49.0			49.0	49.0
Actuated g/C Ratio				0.34	0.34			0.54			0.54	0.54
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				601	1718			1585			1014	861
v/s Ratio Prot					c0.27						0.14	
v/s Ratio Perm				0.01				c0.17				0.08
v/c Ratio				0.03	0.79			0.32			0.26	0.15
Uniform Delay, d1				19.8	26.8			11.3			10.9	10.2
Progression Factor				1.00	1.00			0.75			1.00	1.00
Incremental Delay, d2				0.1	3.9			0.1			0.6	0.4
Delay (s)				19.9	30.7			8.6			11.5	10.5
Level of Service				B	C			A			B	B
Approach Delay (s)		0.0			30.6			8.6			11.0	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	21.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	534	1255	0	0	46	0
Future Volume (veh/h)	534	1255	0	0	46	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	580	1364			50	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4618			0	0
Arrive On Green	0.72	0.72			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	1364			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	6.8				
Cycle Q Clear(g_c), s	0.0	6.8				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4618				
V/C Ratio(X)	0.00	0.30				
Avail Cap(c_a), veh/h	0	4618				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	4.5				
Incr Delay (d2), s/veh	0.0	0.2				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	3.3				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.7				
LnGrp LOS	A	A				
Approach Vol, veh/h		1364				
Approach Delay, s/veh		4.7				
Approach LOS		A				

Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						69.0
Change Period (Y+Rc), s						* 4.4
Max Green Setting (Gmax), s						* 65
Max Q Clear Time (g_c+I1), s						8.8
Green Ext Time (p_c), s						35.8

Intersection Summary		
HCM 6th Ctrl Delay		4.7
HCM 6th LOS		A

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	163	797	167	0	0	0	0	548	97	54	186	0
Future Volume (veh/h)	163	797	167	0	0	0	0	548	97	54	186	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	177	866	182				0	596	105	59	202	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	664	2399	591				0	1324	591	168	908	0
Arrive On Green	0.37	0.37	0.37				0.00	0.37	0.37	0.05	0.49	0.00
Sat Flow, veh/h	1781	6434	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	177	866	182				0	596	105	59	202	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	4.8	6.8	5.7				0.0	8.8	3.1	1.2	4.4	0.0
Cycle Q Clear(g_c), s	4.8	6.8	5.7				0.0	8.8	3.1	1.2	4.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	664	2399	591				0	1324	591	168	908	0
V/C Ratio(X)	0.27	0.36	0.31				0.00	0.45	0.18	0.35	0.22	0.00
Avail Cap(c_a), veh/h	664	2399	591				0	1324	591	272	908	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98				0.00	0.72	0.72	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.3	15.9	15.6				0.0	16.5	14.8	32.2	10.4	0.0
Incr Delay (d2), s/veh	1.0	0.4	1.3				0.0	0.8	0.5	1.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.5	4.0	3.6				0.0	5.1	2.0	0.9	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	16.3	16.9				0.0	17.3	15.2	33.5	10.9	0.0
LnGrp LOS	B	B	B				A	B	B	C	B	A
Approach Vol, veh/h		1225						701			261	
Approach Delay, s/veh		16.4						17.0			16.0	
Approach LOS		B						B			B	
Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		31.0	7.9	31.1				39.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		26.1	5.5	24.0				34.0				
Max Q Clear Time (g_c+I1), s		8.8	3.2	10.8				6.4				
Green Ext Time (p_c), s		6.9	0.0	3.6				1.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.6									
HCM 6th LOS			B									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	138	642	216	0	0	0	0	303	78	78	857	0
Future Volume (veh/h)	138	642	216	0	0	0	0	303	78	78	857	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	150	698	235				0	329	85	85	932	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	450	2259	757				0	518	134	246	1283	0
Arrive On Green	0.52	0.52	0.52				0.00	0.36	0.36	0.72	0.72	0.00
Sat Flow, veh/h	864	4335	1454				0	1433	370	972	3647	0
Grp Volume(v), veh/h	317	506	260				0	0	414	85	932	0
Grp Sat Flow(s),veh/h/ln	1827	1609	1609				0	0	1804	972	1777	0
Q Serve(g_s), s	9.1	8.0	8.3				0.0	0.0	17.1	6.3	13.8	0.0
Cycle Q Clear(g_c), s	9.1	8.0	8.3				0.0	0.0	17.1	23.4	13.8	0.0
Prop In Lane	0.47		0.90				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	952	1676	838				0	0	651	246	1283	0
V/C Ratio(X)	0.33	0.30	0.31				0.00	0.00	0.64	0.35	0.73	0.00
Avail Cap(c_a), veh/h	952	1676	838				0	0	898	379	1769	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	0.86	0.73	0.73	0.00
Uniform Delay (d), s/veh	12.5	12.2	12.3				0.0	0.0	23.8	18.1	9.9	0.0
Incr Delay (d2), s/veh	0.9	0.5	1.0				0.0	0.0	0.9	0.6	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	5.7	4.6	4.9				0.0	0.0	9.8	2.1	4.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	12.7	13.3				0.0	0.0	24.7	18.7	10.6	0.0
LnGrp LOS	B	B	B				A	A	C	B	B	A
Approach Vol, veh/h		1083						414			1017	
Approach Delay, s/veh		13.1						24.7			11.3	
Approach LOS		B						C			B	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				37.7		52.3		37.7				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 45		34.6		* 45				
Max Q Clear Time (g_c+I1), s				25.4		11.1		19.1				
Green Ext Time (p_c), s				7.1		7.8		2.7				
Intersection Summary												
HCM 6th Ctrl Delay			14.3									
HCM 6th LOS			B									

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	122	546	60	0	0	0	0	408	42	1	271	0
Future Volume (veh/h)	122	546	60	0	0	0	0	408	42	1	271	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	133	593	65				0	443	46	1	295	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	410	1987	218				0	1600	165	41	920	0
Arrive On Green	0.13	0.13	0.13				0.00	0.49	0.49	0.98	0.98	0.00
Sat Flow, veh/h	1066	5169	567				0	3344	336	1	1869	0
Grp Volume(v), veh/h	227	362	203				0	241	248	296	0	0
Grp Sat Flow(s),veh/h/ln	1817	1609	1768				0	1777	1810	1870	0	0
Q Serve(g_s), s	10.2	9.2	9.4				0.0	7.2	7.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	10.2	9.2	9.4				0.0	7.2	7.2	0.3	0.0	0.0
Prop In Lane	0.59		0.32				0.00		0.19	0.00		0.00
Lane Grp Cap(c), veh/h	699	1237	680				0	875	891	960	0	0
V/C Ratio(X)	0.32	0.29	0.30				0.00	0.28	0.28	0.31	0.00	0.00
Avail Cap(c_a), veh/h	699	1237	680				0	875	891	960	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.95	0.95	0.95				0.00	1.00	1.00	0.98	0.00	0.00
Uniform Delay (d), s/veh	28.7	28.2	28.3				0.0	13.4	13.4	0.4	0.0	0.0
Incr Delay (d2), s/veh	1.2	0.6	1.1				0.0	0.8	0.8	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	7.4	5.9	6.6				0.0	4.7	4.8	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	28.8	29.3				0.0	14.2	14.2	1.2	0.0	0.0
LnGrp LOS	C	C	C				A	B	B	A	A	A
Approach Vol, veh/h		791						489			296	
Approach Delay, s/veh		29.2						14.2			1.2	
Approach LOS		C						B			A	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		40.0		50.0				50.0				
Change Period (Y+Rc), s		* 5.4		5.7				5.7				
Max Green Setting (Gmax), s		* 35		44.3				44.3				
Max Q Clear Time (g_c+I1), s		12.2		2.3				9.2				
Green Ext Time (p_c), s		5.2		1.9				3.2				

Intersection Summary			
HCM 6th Ctrl Delay			19.3
HCM 6th LOS			B

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1136	103	401	668	0	0	0	150
Future Volume (vph)	0	0	0	0	1136	103	401	668	0	0	0	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		5.4	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.99		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6328		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6328		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1235	112	436	726	0	0	0	163
RTOR Reduction (vph)	0	0	0	0	13	0	94	0	0	0	0	124
Lane Group Flow (vph)	0	0	0	0	1334	0	342	726	0	0	0	39
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					47.6		20.1	20.1				7.0
Effective Green, g (s)					47.6		20.1	20.1				7.0
Actuated g/C Ratio					0.53		0.22	0.22				0.08
Clearance Time (s)					5.4		5.4	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					3346		766	1135				216
v/s Ratio Prot					c0.21		0.10	c0.14				
v/s Ratio Perm												c0.01
v/c Ratio					0.40		0.45	0.64				0.18
Uniform Delay, d1					12.7		30.2	31.7				38.8
Progression Factor					0.72		1.00	1.00				1.00
Incremental Delay, d2					0.3		0.4	1.2				0.4
Delay (s)					9.5		30.6	32.9				39.2
Level of Service					A		C	C				D
Approach Delay (s)		0.0			9.5			32.0			39.2	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	63	886	105	71	299	0	0	761	240
Future Volume (veh/h)	0	0	0	63	886	105	71	299	0	0	761	240
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				68	963	114	77	325	0	0	827	261
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				898	2965	347	178	705	0	0	1340	598
Arrive On Green				0.50	0.50	0.50	0.38	0.38	0.00	0.00	0.38	0.38
Sat Flow, veh/h				1781	5883	689	518	1870	0	0	3647	1585
Grp Volume(v), veh/h				68	788	289	77	325	0	0	827	261
Grp Sat Flow(s),veh/h/ln				1781	1609	1746	518	1870	0	0	1777	1585
Q Serve(g_s), s				1.8	8.7	8.9	12.7	11.8	0.0	0.0	17.0	11.0
Cycle Q Clear(g_c), s				1.8	8.7	8.9	29.7	11.8	0.0	0.0	17.0	11.0
Prop In Lane				1.00		0.39	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				898	2432	880	178	705	0	0	1340	598
V/C Ratio(X)				0.08	0.32	0.33	0.43	0.46	0.00	0.00	0.62	0.44
Avail Cap(c_a), veh/h				898	2432	880	234	908	0	0	1726	770
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.64	0.64
Uniform Delay (d), s/veh				11.5	13.2	13.3	34.8	21.1	0.0	0.0	22.8	20.9
Incr Delay (d2), s/veh				0.2	0.4	1.0	1.7	0.5	0.0	0.0	0.3	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				1.3	4.9	5.5	3.0	7.4	0.0	0.0	9.1	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				11.7	13.6	14.3	36.5	21.6	0.0	0.0	23.0	21.2
LnGrp LOS				B	B	B	D	C	A	A	C	C
Approach Vol, veh/h					1145			402			1088	
Approach Delay, s/veh					13.6			24.4			22.6	
Approach LOS					B			C			C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	50.8	39.2	39.2
Change Period (Y+Rc), s	* 5.4	* 5.3	* 5.3
Max Green Setting (Gmax), s	* 36	* 44	* 44
Max Q Clear Time (g_c+I1), s	10.9	19.0	31.7
Green Ext Time (p_c), s	8.4	7.4	2.2

Intersection Summary	
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	119	856	0	0	154	0
Future Volume (Veh/h)	119	856	0	0	154	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	930	0	0	167	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		202	200			
pX, platoon unblocked					0.91	
vC, conflicting volume	0				490	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				81	100
cM capacity (veh/h)	1622				859	1084

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	SW 1
Volume Total	262	266	266	266	167
Volume Left	129	0	0	0	167
Volume Right	0	0	0	0	0
cSH	1622	1700	1700	1700	859
Volume to Capacity	0.08	0.16	0.16	0.16	0.19
Queue Length 95th (ft)	6	0	0	0	18
Control Delay (s)	4.0	0.0	0.0	0.0	10.2
Lane LOS	A				B
Approach Delay (s)	1.0				10.2
Approach LOS					B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	29.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	75	656	60	24	242
Future Vol, veh/h	0	75	656	60	24	242
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	82	713	65	26	263

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	903	389	0	0	778	0
Stage 1	746	-	-	-	-	-
Stage 2	157	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	347	521	-	-	500	-
Stage 1	345	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	326	521	-	-	500	-
Mov Cap-2 Maneuver	326	-	-	-	-	-
Stage 1	345	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	13.2	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	521	500	-
HCM Lane V/C Ratio	-	-	0.156	0.052	-
HCM Control Delay (s)	-	-	13.2	12.6	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	65	0	71	102	68	17	194	1362	0	0	148	12
Future Volume (veh/h)	65	0	71	102	68	17	194	1362	0	0	148	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h	71	0	77	111	74	18	211	1480	0	0	161	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	163	133	32	1034	4076	0	0	2661	213
Arrive On Green	0.00	0.00	0.00	0.09	0.09	0.09	1.00	1.00	0.00	0.00	0.80	0.80
Sat Flow, veh/h		0		1781	1453	353	1211	5274	0	0	3426	267
Grp Volume(v), veh/h		0.0		111	0	92	211	1480	0	0	85	89
Grp Sat Flow(s),veh/h/ln				1781	0	1807	1211	1702	0	0	1777	1822
Q Serve(g_s), s				5.4	0.0	4.4	0.3	0.0	0.0	0.0	0.9	0.9
Cycle Q Clear(g_c), s				5.4	0.0	4.4	1.2	0.0	0.0	0.0	0.9	0.9
Prop In Lane				1.00		0.20	1.00		0.00	0.00		0.15
Lane Grp Cap(c), veh/h				163	0	166	1034	4077	0	0	1419	1455
V/C Ratio(X)				0.68	0.00	0.56	0.20	0.36	0.00	0.00	0.06	0.06
Avail Cap(c_a), veh/h				414	0	420	1034	4077	0	0	1419	1455
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.92	0.92	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				39.6	0.0	39.1	0.0	0.0	0.0	0.0	1.9	1.9
Incr Delay (d2), s/veh				4.9	0.0	2.9	0.4	0.2	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				4.2	0.0	3.5	0.2	0.2	0.0	0.0	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				44.5	0.0	42.0	0.4	0.2	0.0	0.0	2.0	2.0
LnGrp LOS				D	A	D	A	A	A	A	A	A
Approach Vol, veh/h					203			1691			174	
Approach Delay, s/veh					43.4			0.3			2.0	
Approach LOS					D			A			A	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	76.7	13.3	76.7
Change Period (Y+Rc), s	* 4.8	* 5.1	* 4.8
Max Green Setting (Gmax), s	* 45	* 21	* 45
Max Q Clear Time (g_c+I1), s	2.9	7.4	3.2
Green Ext Time (p_c), s	1.0	0.9	17.3

Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	244	46	85	1022	179	77
Future Volume (veh/h)	244	46	85	1022	179	77
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	265	50	92	1111	195	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	314	280	870	3667	1343	1138
Arrive On Green	0.18	0.18	0.72	0.72	1.00	1.00
Sat Flow, veh/h	1781	1585	1100	5274	1870	1585
Grp Volume(v), veh/h	265	50	92	1111	195	84
Grp Sat Flow(s),veh/h/ln	1781	1585	1100	1702	1870	1585
Q Serve(g_s), s	13.0	2.4	2.3	7.1	0.0	0.0
Cycle Q Clear(g_c), s	13.0	2.4	2.3	7.1	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	314	280	870	3667	1343	1138
V/C Ratio(X)	0.84	0.18	0.11	0.30	0.15	0.07
Avail Cap(c_a), veh/h	742	660	870	3667	1343	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.99	0.99
Uniform Delay (d), s/veh	35.9	31.5	3.9	4.6	0.0	0.0
Incr Delay (d2), s/veh	6.1	0.3	0.2	0.2	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	8.6	1.7	0.9	3.5	0.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	31.8	4.1	4.8	0.2	0.1
LnGrp LOS	D	C	A	A	A	A
Approach Vol, veh/h	315			1203	279	
Approach Delay, s/veh	40.4			4.7	0.2	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		69.6		20.4		69.6
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		43.0		37.5		43.0
Max Q Clear Time (g_c+I1), s		9.1		15.0		2.0
Green Ext Time (p_c), s		10.4		0.9		1.5

Intersection Summary						
HCM 6th Ctrl Delay			10.3			
HCM 6th LOS			B			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	118	1045	157	69	505	0	0	798	260
Future Volume (veh/h)	0	0	0	118	1045	157	69	505	0	0	798	260
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				128	1136	171	75	549	0	0	867	283
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				891	1778	793	171	1365	0	0	1365	609
Arrive On Green				0.17	0.17	0.17	0.77	0.77	0.00	0.00	0.38	0.38
Sat Flow, veh/h				1781	3554	1585	489	3647	0	0	3647	1585
Grp Volume(v), veh/h				128	1136	171	75	549	0	0	867	283
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	489	1777	0	0	1777	1585
Q Serve(g_s), s				5.5	26.9	8.4	12.5	4.7	0.0	0.0	17.9	12.0
Cycle Q Clear(g_c), s				5.5	26.9	8.4	30.4	4.7	0.0	0.0	17.9	12.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				891	1778	793	171	1365	0	0	1365	609
V/C Ratio(X)				0.14	0.64	0.22	0.44	0.40	0.00	0.00	0.64	0.46
Avail Cap(c_a), veh/h				891	1778	793	189	1500	0	0	1500	669
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.79	0.79	0.79	0.76	0.76	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				21.1	30.0	22.3	18.1	7.0	0.0	0.0	22.6	20.8
Incr Delay (d2), s/veh				0.3	1.4	0.5	1.4	0.1	0.0	0.0	0.8	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				3.8	16.3	5.2	2.1	2.5	0.0	0.0	10.1	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.3	31.4	22.8	19.4	7.1	0.0	0.0	23.4	21.3
LnGrp LOS				C	C	C	B	A	A	A	C	C
Approach Vol, veh/h					1435			624			1150	
Approach Delay, s/veh					29.5			8.6			22.9	
Approach LOS					C			A			C	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		50.4		39.6				39.6				
Change Period (Y+Rc), s		* 5.4		* 5				* 5				
Max Green Setting (Gmax), s		* 42		* 38				* 38				
Max Q Clear Time (g_c+I1), s		28.9		32.4				19.9				
Green Ext Time (p_c), s		7.3		2.1				7.0				
Intersection Summary												
HCM 6th Ctrl Delay			23.0									
HCM 6th LOS			C									

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	51	891	153	135	767	0	0	314	111
Future Volume (vph)	0	0	0	51	891	153	135	767	0	0	314	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.98			1.00			1.00	0.85
Flt Protected				0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)				1770	4974			3513			1863	1583
Flt Permitted				0.95	1.00			0.77			1.00	1.00
Satd. Flow (perm)				1770	4974			2732			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	55	968	166	147	834	0	0	341	121
RTOR Reduction (vph)	0	0	0	0	27	0	0	0	0	0	0	56
Lane Group Flow (vph)	0	0	0	55	1107	0	0	981	0	0	341	65
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				32.6	32.6			47.0			47.0	47.0
Effective Green, g (s)				32.6	32.6			47.0			47.0	47.0
Actuated g/C Ratio				0.36	0.36			0.52			0.52	0.52
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				641	1801			1426			972	826
v/s Ratio Prot					c0.22						0.18	
v/s Ratio Perm				0.03				c0.36				0.04
v/c Ratio				0.09	0.61			0.69			0.35	0.08
Uniform Delay, d1				18.9	23.5			16.0			12.6	10.7
Progression Factor				1.00	1.00			1.02			1.00	1.00
Incremental Delay, d2				0.3	1.6			1.2			1.0	0.2
Delay (s)				19.2	25.1			17.5			13.6	10.9
Level of Service				B	C			B			B	B
Approach Delay (s)		0.0			24.9			17.5			12.9	
Approach LOS		A			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	126	1216	0	0	132	0
Future Volume (veh/h)	126	1216	0	0	132	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	137	1322			143	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4189			0	0
Arrive On Green	0.65	0.65			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	1322			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	8.1				
Cycle Q Clear(g_c), s	0.0	8.1				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4189				
V/C Ratio(X)	0.00	0.32				
Avail Cap(c_a), veh/h	0	4189				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	6.9				
Incr Delay (d2), s/veh	0.0	0.2				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	4.1				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	7.1				
LnGrp LOS	A	A				
Approach Vol, veh/h		1322				
Approach Delay, s/veh		7.1				
Approach LOS		A				
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						63.0
Change Period (Y+Rc), s						* 4.4
Max Green Setting (Gmax), s						* 59
Max Q Clear Time (g_c+I1), s						10.1
Green Ext Time (p_c), s						31.6
Intersection Summary						
HCM 6th Ctrl Delay			7.1			
HCM 6th LOS			A			

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	193	1067	105	0	0	0	0	1116	288	135	149	0
Future Volume (veh/h)	193	1067	105	0	0	0	0	1116	288	135	149	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	210	1160	114				0	1213	313	147	162	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	517	1866	460				0	1966	507	220	1122	0
Arrive On Green	0.10	0.10	0.10				0.00	0.49	0.49	0.06	0.60	0.00
Sat Flow, veh/h	1781	6434	1585				0	4212	1043	3456	1870	0
Grp Volume(v), veh/h	210	1160	114				0	1021	505	147	162	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1702	1683	1728	1870	0
Q Serve(g_s), s	10.0	15.6	6.0				0.0	19.8	19.8	3.7	3.4	0.0
Cycle Q Clear(g_c), s	10.0	15.6	6.0				0.0	19.8	19.8	3.7	3.4	0.0
Prop In Lane	1.00		1.00				0.00		0.62	1.00		0.00
Lane Grp Cap(c), veh/h	517	1866	460				0	1655	818	220	1122	0
V/C Ratio(X)	0.41	0.62	0.25				0.00	0.62	0.62	0.67	0.14	0.00
Avail Cap(c_a), veh/h	517	1866	460				0	1655	818	365	1122	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97				0.00	0.61	0.61	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.4	35.9	31.6				0.0	17.0	17.0	41.2	7.9	0.0
Incr Delay (d2), s/veh	2.3	1.5	1.2				0.0	1.1	2.1	3.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	7.3	9.6	4.2				0.0	9.7	9.9	3.0	2.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	37.5	32.9				0.0	18.0	19.1	44.7	8.2	0.0
LnGrp LOS	D	D	C				A	B	B	D	A	A
Approach Vol, veh/h		1484						1526			309	
Approach Delay, s/veh		36.9						18.4			25.5	
Approach LOS		D						B			C	

Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		31.0	10.2	48.8				59.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		26.1	9.5	40.0				54.0				
Max Q Clear Time (g_c+I1), s		17.6	5.7	21.8				5.4				
Green Ext Time (p_c), s		5.4	0.1	10.5				1.0				

Intersection Summary			
HCM 6th Ctrl Delay			27.3
HCM 6th LOS			C

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	50	1103	252	0	0	0	0	611	98	107	809	0
Future Volume (veh/h)	50	1103	252	0	0	0	0	611	98	107	809	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	54	1199	274				0	664	107	116	879	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	86	2025	475				0	1214	195	240	1407	0
Arrive On Green	0.38	0.38	0.38				0.00	0.40	0.40	0.79	0.79	0.00
Sat Flow, veh/h	223	5267	1235				0	3159	493	698	3647	0
Grp Volume(v), veh/h	451	710	366				0	385	386	116	879	0
Grp Sat Flow(s),veh/h/ln	1859	1609	1648				0	1777	1782	698	1777	0
Q Serve(g_s), s	17.7	15.7	15.8				0.0	15.0	15.1	12.1	9.2	0.0
Cycle Q Clear(g_c), s	17.7	15.7	15.8				0.0	15.0	15.1	27.2	9.2	0.0
Prop In Lane	0.12		0.75				0.00		0.28	1.00		0.00
Lane Grp Cap(c), veh/h	715	1237	634				0	704	705	240	1407	0
V/C Ratio(X)	0.63	0.57	0.58				0.00	0.55	0.55	0.48	0.62	0.00
Avail Cap(c_a), veh/h	715	1237	634				0	884	887	311	1769	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.86	0.86	0.74	0.74	0.00
Uniform Delay (d), s/veh	22.5	21.9	21.9				0.0	21.0	21.0	14.6	6.6	0.0
Incr Delay (d2), s/veh	4.2	1.9	3.8				0.0	0.6	0.6	1.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	11.3	8.6	9.2				0.0	8.5	8.5	2.5	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	23.8	25.7				0.0	21.5	21.5	15.7	6.9	0.0
LnGrp LOS	C	C	C				A	C	C	B	A	A
Approach Vol, veh/h		1527						771			995	
Approach Delay, s/veh		25.1						21.5			8.0	
Approach LOS		C						C			A	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				40.8		40.0		40.8				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 45		34.6		* 45				
Max Q Clear Time (g_c+I1), s				29.2		19.7		17.1				
Green Ext Time (p_c), s				6.4		8.8		5.4				
Intersection Summary												
HCM 6th Ctrl Delay			19.1									
HCM 6th LOS			B									

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	252	1045	92	0	0	0	0	724	65	3	339	0
Future Volume (veh/h)	252	1045	92	0	0	0	0	724	65	3	339	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	274	1136	100				0	787	71	3	368	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	396	1783	159				0	1760	159	42	994	0
Arrive On Green	0.11	0.11	0.11				0.00	0.53	0.53	0.18	0.18	0.00
Sat Flow, veh/h	1155	5199	463				0	3390	297	3	1862	0
Grp Volume(v), veh/h	430	694	386				0	424	434	371	0	0
Grp Sat Flow(s),veh/h/ln	1813	1609	1787				0	1777	1817	1865	0	0
Q Serve(g_s), s	20.6	18.5	18.6				0.0	13.2	13.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.6	18.5	18.6				0.0	13.2	13.2	15.7	0.0	0.0
Prop In Lane	0.64		0.26				0.00		0.16	0.01		0.00
Lane Grp Cap(c), veh/h	621	1103	613				0	948	970	1036	0	0
V/C Ratio(X)	0.69	0.63	0.63				0.00	0.45	0.45	0.36	0.00	0.00
Avail Cap(c_a), veh/h	737	1308	727				0	948	970	1036	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.87	0.87	0.87				0.00	1.00	1.00	0.96	0.00	0.00
Uniform Delay (d), s/veh	35.3	34.4	34.5				0.0	12.8	12.8	23.8	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.6	1.1				0.0	1.5	1.5	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	13.3	10.8	11.9				0.0	7.7	7.8	11.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	35.1	35.6				0.0	14.4	14.3	24.7	0.0	0.0
LnGrp LOS	D	D	D				A	B	B	C	A	A
Approach Vol, veh/h		1510						858			371	
Approach Delay, s/veh		35.8						14.4			24.7	
Approach LOS		D						B			C	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		36.3		53.7				53.7				
Change Period (Y+Rc), s		* 5.4		5.7				5.7				
Max Green Setting (Gmax), s		* 37		42.3				42.3				
Max Q Clear Time (g_c+I1), s		22.6		17.7				15.2				
Green Ext Time (p_c), s		8.3		2.3				6.1				

Intersection Summary			
HCM 6th Ctrl Delay			27.6
HCM 6th LOS			C

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	924	112	524	1229	0	0	0	359
Future Volume (vph)	0	0	0	0	924	112	524	1229	0	0	0	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		4.5	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.98		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6304		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6304		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1004	122	570	1336	0	0	0	390
RTOR Reduction (vph)	0	0	0	0	22	0	53	0	0	0	0	130
Lane Group Flow (vph)	0	0	0	0	1104	0	517	1336	0	0	0	260
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					28.8		33.5	32.6				13.3
Effective Green, g (s)					28.8		33.5	32.6				13.3
Actuated g/C Ratio					0.32		0.37	0.36				0.15
Clearance Time (s)					5.4		4.5	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					2017		1277	1841				411
v/s Ratio Prot					c0.18		0.15	c0.26				
v/s Ratio Perm												c0.09
v/c Ratio					0.55		0.41	0.73				0.63
Uniform Delay, d1					25.2		20.9	24.8				36.1
Progression Factor					0.82		1.00	1.00				1.24
Incremental Delay, d2					1.0		0.2	2.5				3.2
Delay (s)					21.8		21.1	27.4				48.0
Level of Service					C		C	C				D
Approach Delay (s)		0.0			21.8			25.5			48.0	
Approach LOS		A			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	80	681	126	97	596	0	0	794	181
Future Volume (veh/h)	0	0	0	80	681	126	97	596	0	0	794	181
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				87	740	137	105	648	0	0	863	197
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				789	2445	441	217	1557	0	0	1557	695
Arrive On Green				0.44	0.44	0.44	0.44	0.44	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1781	5520	996	532	3647	0	0	3647	1585
Grp Volume(v), veh/h				87	644	233	105	648	0	0	863	197
Grp Sat Flow(s),veh/h/ln				1781	1609	1691	532	1777	0	0	1777	1585
Q Serve(g_s), s				2.6	7.7	8.0	16.4	11.3	0.0	0.0	16.2	7.2
Cycle Q Clear(g_c), s				2.6	7.7	8.0	32.6	11.3	0.0	0.0	16.2	7.2
Prop In Lane				1.00		0.59	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				789	2137	749	217	1557	0	0	1557	695
V/C Ratio(X)				0.11	0.30	0.31	0.48	0.42	0.00	0.00	0.55	0.28
Avail Cap(c_a), veh/h				789	2137	749	272	1923	0	0	1923	858
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.67	0.67
Uniform Delay (d), s/veh				14.7	16.1	16.2	30.9	17.4	0.0	0.0	18.8	16.2
Incr Delay (d2), s/veh				0.3	0.4	1.1	1.7	0.2	0.0	0.0	0.2	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				1.9	4.6	5.1	3.7	6.7	0.0	0.0	8.6	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.0	16.5	17.3	32.5	17.5	0.0	0.0	19.0	16.4
LnGrp LOS				B	B	B	C	B	A	A	B	B
Approach Vol, veh/h					964			753			1060	
Approach Delay, s/veh					16.5			19.6			18.5	
Approach LOS					B			B			B	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		45.3		44.7				44.7				
Change Period (Y+Rc), s		* 5.4		* 5.3				* 5.3				
Max Green Setting (Gmax), s		* 31		* 49				* 49				
Max Q Clear Time (g_c+I1), s		10.0		18.2				34.6				
Green Ext Time (p_c), s		6.3		7.9				4.8				
Intersection Summary												
HCM 6th Ctrl Delay			18.1									
HCM 6th LOS			B									

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	325	1194	0	0	240	0
Future Volume (Veh/h)	325	1194	0	0	240	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	353	1298	0	0	261	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		202	200			
pX, platoon unblocked					0.85	
vC, conflicting volume	0				1030	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				152	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				52	100
cM capacity (veh/h)	1622				548	1084

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	SW 1
Volume Total	538	371	371	371	261
Volume Left	353	0	0	0	261
Volume Right	0	0	0	0	0
cSH	1622	1700	1700	1700	548
Volume to Capacity	0.22	0.22	0.22	0.22	0.48
Queue Length 95th (ft)	21	0	0	0	64
Control Delay (s)	5.8	0.0	0.0	0.0	17.4
Lane LOS	A				C
Approach Delay (s)	1.9				17.4
Approach LOS					C

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	28	1276	33	28	295
Future Vol, veh/h	0	28	1276	33	28	295
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	30	1387	36	30	321

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1593	712	0	0	1423	0
Stage 1	1405	-	-	-	-	-
Stage 2	188	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	154	322	-	-	243	-
Stage 1	136	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	131	322	-	-	243	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	136	-	-	-	-	-
Stage 2	644	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	17.3	0	1.9
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	322	243	-
HCM Lane V/C Ratio	-	-	0.095	0.125	-
HCM Control Delay (s)	-	-	17.3	21.9	-
HCM Lane LOS	-	-	C	C	-
HCM 95th %tile Q(veh)	-	-	0.3	0.4	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	33	0	107	260	222	60	257	805	1	1	698	19
Future Volume (veh/h)	33	0	107	260	222	60	257	805	1	1	698	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	0	116	283	241	65	279	875	1	1	759	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	0	470	436	119	416	2087	2	52	1981	55
Arrive On Green	0.00	0.00	0.00	0.29	0.29	0.29	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h		0		1644	1525	415	693	3642	4	0	3458	96
Grp Volume(v), veh/h		0.0		308	0	281	279	427	449	411	0	370
Grp Sat Flow(s),veh/h/ln				1788	0	1796	693	1777	1870	1869	0	1685
Q Serve(g_s), s				10.4	0.0	9.3	25.9	9.5	9.5	0.0	0.0	8.4
Cycle Q Clear(g_c), s				10.4	0.0	9.3	34.3	9.5	9.5	8.4	0.0	8.4
Prop In Lane				0.92		0.23	1.00		0.00	0.00		0.06
Lane Grp Cap(c), veh/h				511	0	513	416	1018	1071	1122	0	965
V/C Ratio(X)				0.60	0.00	0.55	0.67	0.42	0.42	0.37	0.00	0.38
Avail Cap(c_a), veh/h				511	0	513	416	1018	1071	1122	0	965
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.95	1.00	0.00	1.00
Uniform Delay (d), s/veh				21.6	0.0	21.2	17.6	8.4	8.4	8.2	0.0	8.2
Incr Delay (d2), s/veh				5.2	0.0	4.2	7.9	1.2	1.1	0.9	0.0	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				7.1	0.0	6.4	6.7	5.2	5.4	5.0	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.8	0.0	25.3	25.5	9.6	9.6	9.1	0.0	9.3
LnGrp LOS				C	A	C	C	A	A	A	A	A
Approach Vol, veh/h					589			1155			781	
Approach Delay, s/veh					26.1			13.4			9.2	
Approach LOS					C			B			A	

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	44.9	25.1	44.9
Change Period (Y+Rc), s	* 4.8	* 5.1	* 4.8
Max Green Setting (Gmax), s	* 30	* 20	* 30
Max Q Clear Time (g_c+I1), s	10.4	12.4	36.3
Green Ext Time (p_c), s	4.9	2.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.1
HCM 6th LOS	B

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	52	110	165	921	785	364
Future Volume (veh/h)	52	110	165	921	785	364
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	120	179	1001	853	396
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	178	158	443	2716	1430	1212
Arrive On Green	0.10	0.10	0.76	0.76	1.00	1.00
Sat Flow, veh/h	1781	1585	445	3647	1870	1585
Grp Volume(v), veh/h	57	120	179	1001	853	396
Grp Sat Flow(s),veh/h/ln	1781	1585	445	1777	1870	1585
Q Serve(g_s), s	2.1	5.2	11.1	6.5	0.0	0.0
Cycle Q Clear(g_c), s	2.1	5.2	11.1	6.5	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	178	158	443	2716	1430	1212
V/C Ratio(X)	0.32	0.76	0.40	0.37	0.60	0.33
Avail Cap(c_a), veh/h	216	192	443	2716	1430	1212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.83	0.83
Uniform Delay (d), s/veh	29.3	30.7	3.3	2.7	0.0	0.0
Incr Delay (d2), s/veh	1.0	13.0	2.7	0.4	0.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.6	4.1	1.5	2.4	0.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.3	43.7	6.0	3.1	0.6	0.1
LnGrp LOS	C	D	A	A	A	A
Approach Vol, veh/h	177			1180	1249	
Approach Delay, s/veh	39.4			3.5	0.4	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		58.5		11.5		58.5
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		52.0		8.5		52.0
Max Q Clear Time (g_c+I1), s		13.1		7.2		2.0
Green Ext Time (p_c), s		13.5		0.1		10.6

Intersection Summary			
HCM 6th Ctrl Delay			4.5
HCM 6th LOS			A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	219	1706	124	97	639	0	0	1143	407
Future Volume (veh/h)	0	0	0	219	1706	124	97	639	0	0	1143	407
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				238	1854	135	105	695	0	0	1242	442
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				823	1643	733	113	1500	0	0	1500	669
Arrive On Green				0.15	0.15	0.15	0.84	0.84	0.00	0.00	0.42	0.42
Sat Flow, veh/h				1781	3554	1585	293	3647	0	0	3647	1585
Grp Volume(v), veh/h				238	1854	135	105	695	0	0	1242	442
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	293	1777	0	0	1777	1585
Q Serve(g_s), s				10.7	41.6	6.7	10.1	4.5	0.0	0.0	27.9	20.1
Cycle Q Clear(g_c), s				10.7	41.6	6.7	38.0	4.5	0.0	0.0	27.9	20.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				823	1643	733	113	1500	0	0	1500	669
V/C Ratio(X)				0.29	1.13	0.18	0.93	0.46	0.00	0.00	0.83	0.66
Avail Cap(c_a), veh/h				823	1643	733	113	1500	0	0	1500	669
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.09	0.09	0.09	0.30	0.30	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.0	38.1	23.3	24.4	4.4	0.0	0.0	23.1	20.8
Incr Delay (d2), s/veh				0.1	58.8	0.0	29.6	0.1	0.0	0.0	4.0	2.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				5.7	38.3	3.1	3.9	1.8	0.0	0.0	15.4	10.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.1	96.9	23.4	54.0	4.5	0.0	0.0	27.1	23.2
LnGrp LOS				C	F	C	D	A	A	A	C	C
Approach Vol, veh/h					2227			800			1684	
Approach Delay, s/veh					84.8			11.0			26.1	
Approach LOS					F			B			C	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		47.0		43.0				43.0				
Change Period (Y+Rc), s		* 5.4		* 5				* 5				
Max Green Setting (Gmax), s		* 42		* 38				* 38				
Max Q Clear Time (g_c+I1), s		43.6		40.0				29.9				
Green Ext Time (p_c), s		0.0		0.0				5.8				

Intersection Summary		
HCM 6th Ctrl Delay		51.3
HCM 6th LOS		D

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	77	1678	95	102	741	0	0	472	316
Future Volume (vph)	0	0	0	77	1678	95	102	741	0	0	472	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.99			1.00			1.00	0.85
Flt Protected				0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)				1770	5045			3518			1863	1583
Flt Permitted				0.95	1.00			0.75			1.00	1.00
Satd. Flow (perm)				1770	5045			2640			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	84	1824	103	111	805	0	0	513	343
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	0	145
Lane Group Flow (vph)	0	0	0	84	1920	0	0	916	0	0	513	198
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				29.6	29.6			50.0			50.0	50.0
Effective Green, g (s)				29.6	29.6			50.0			50.0	50.0
Actuated g/C Ratio				0.33	0.33			0.56			0.56	0.56
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				582	1659			1466			1035	879
v/s Ratio Prot					c0.38						0.28	
v/s Ratio Perm				0.05				c0.35				0.12
v/c Ratio				0.14	1.16			0.62			0.50	0.22
Uniform Delay, d1				21.3	30.2			13.6			12.3	10.2
Progression Factor				1.00	1.00			0.62			1.00	1.00
Incremental Delay, d2				0.5	78.1			0.7			1.7	0.6
Delay (s)				21.8	108.3			9.2			14.0	10.8
Level of Service				C	F			A			B	B
Approach Delay (s)		0.0			104.7			9.2			12.7	
Approach LOS		A			F			A			B	

Intersection Summary			
HCM 2000 Control Delay	60.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	676	2095	0	0	69	0
Future Volume (veh/h)	676	2095	0	0	69	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	735	2277			75	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4904			0	0
Arrive On Green	0.76	0.76			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2277			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	11.7				
Cycle Q Clear(g_c), s	0.0	11.7				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4904				
V/C Ratio(X)	0.00	0.46				
Avail Cap(c_a), veh/h	0	4904				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	3.9				
Incr Delay (d2), s/veh	0.0	0.3				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	4.6				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.3				
LnGrp LOS	A	A				
Approach Vol, veh/h		2277				
Approach Delay, s/veh		4.3				
Approach LOS		A				
Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						73.0
Change Period (Y+Rc), s						* 4.4
Max Green Setting (Gmax), s						* 69
Max Q Clear Time (g_c+I1), s						13.7
Green Ext Time (p_c), s						51.9
Intersection Summary						
HCM 6th Ctrl Delay			4.3			
HCM 6th LOS			A			

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	341	1450	183	0	0	0	0	874	103	131	445	0
Future Volume (veh/h)	341	1450	183	0	0	0	0	874	103	131	445	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	371	1576	199				0	950	112	142	484	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	611	2206	543				0	1366	609	231	965	0
Arrive On Green	0.34	0.34	0.34				0.00	0.38	0.38	0.07	0.52	0.00
Sat Flow, veh/h	1781	6434	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	371	1576	199				0	950	112	142	484	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	12.1	14.9	6.6				0.0	15.7	3.3	2.8	11.8	0.0
Cycle Q Clear(g_c), s	12.1	14.9	6.6				0.0	15.7	3.3	2.8	11.8	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	611	2206	543				0	1366	609	231	965	0
V/C Ratio(X)	0.61	0.71	0.37				0.00	0.70	0.18	0.61	0.50	0.00
Avail Cap(c_a), veh/h	611	2206	543				0	1366	609	272	965	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91				0.00	0.46	0.46	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.1	20.0	17.3				0.0	18.1	14.3	31.8	11.1	0.0
Incr Delay (d2), s/veh	4.1	1.8	1.7				0.0	1.4	0.3	3.1	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	7.6	7.7	4.1				0.0	7.9	1.9	2.2	7.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	21.8	19.0				0.0	19.5	14.6	34.8	12.9	0.0
LnGrp LOS	C	C	B				A	B	B	C	B	A
Approach Vol, veh/h		2146						1062			626	
Approach Delay, s/veh		21.8						18.9			17.9	
Approach LOS		C						B			B	

Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		28.9	9.2	31.9				41.1				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		24.0	5.5	26.1				36.1				
Max Q Clear Time (g_c+I1), s		16.9	4.8	17.7				13.8				
Green Ext Time (p_c), s		5.8	0.0	4.3				3.1				

Intersection Summary		
HCM 6th Ctrl Delay		20.4
HCM 6th LOS		C

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	137	1322	243	0	0	0	0	608	211	98	1247	0
Future Volume (veh/h)	137	1322	243	0	0	0	0	608	211	98	1247	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	149	1437	264				0	661	229	107	1355	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	162	1670	315				0	749	260	163	2006	0
Arrive On Green	0.32	0.32	0.32				0.00	0.56	0.56	1.00	1.00	0.00
Sat Flow, veh/h	508	5256	990				0	1328	460	625	3647	0
Grp Volume(v), veh/h	541	858	451				0	0	890	107	1355	0
Grp Sat Flow(s),veh/h/ln	1845	1609	1692				0	0	1788	625	1777	0
Q Serve(g_s), s	25.5	22.3	22.3				0.0	0.0	38.9	11.9	0.0	0.0
Cycle Q Clear(g_c), s	25.5	22.3	22.3				0.0	0.0	38.9	50.8	0.0	0.0
Prop In Lane	0.28		0.58				0.00		0.26	1.00		0.00
Lane Grp Cap(c), veh/h	586	1022	538				0	0	1009	163	2006	0
V/C Ratio(X)	0.92	0.84	0.84				0.00	0.00	0.88	0.66	0.68	0.00
Avail Cap(c_a), veh/h	586	1022	538				0	0	1009	163	2006	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	0.39	0.59	0.59	0.00
Uniform Delay (d), s/veh	29.6	28.6	28.6				0.0	0.0	17.0	20.8	0.0	0.0
Incr Delay (d2), s/veh	22.3	8.2	14.6				0.0	0.0	3.9	5.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	18.4	12.7	14.3				0.0	0.0	17.8	3.6	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	36.8	43.1				0.0	0.0	21.0	26.4	0.5	0.0
LnGrp LOS	D	D	D				A	A	C	C	A	A
Approach Vol, veh/h		1850						890			1462	
Approach Delay, s/veh		42.8						21.0			2.4	
Approach LOS		D						C			A	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				56.0		34.0		56.0				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 51		28.6		* 51				
Max Q Clear Time (g_c+I1), s				52.8		27.5		40.9				
Green Ext Time (p_c), s				0.0		1.0		4.8				

Intersection Summary			
HCM 6th Ctrl Delay			24.1
HCM 6th LOS			C

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	170	1294	92	0	0	0	0	759	140	21	546	0
Future Volume (veh/h)	170	1294	92	0	0	0	0	759	140	21	546	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	185	1407	100				0	825	152	23	593	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	238	1949	141				0	1608	296	59	948	0
Arrive On Green	0.11	0.11	0.11				0.00	0.54	0.54	1.00	1.00	0.00
Sat Flow, veh/h	699	5733	415				0	3089	552	32	1766	0
Grp Volume(v), veh/h	485	774	432				0	489	488	616	0	0
Grp Sat Flow(s),veh/h/ln	1835	1609	1796				0	1777	1771	1798	0	0
Q Serve(g_s), s	23.2	20.9	20.9				0.0	15.8	15.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.2	20.9	20.9				0.0	15.8	15.8	0.0	0.0	0.0
Prop In Lane	0.38		0.23				0.00		0.31	0.04		0.00
Lane Grp Cap(c), veh/h	624	1094	611				0	954	950	1007	0	0
V/C Ratio(X)	0.78	0.71	0.71				0.00	0.51	0.51	0.61	0.00	0.00
Avail Cap(c_a), veh/h	624	1094	611				0	954	950	1007	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.35	0.35	0.35				0.00	1.00	1.00	0.90	0.00	0.00
Uniform Delay (d), s/veh	36.6	35.6	35.6				0.0	13.3	13.3	0.0	0.0	0.0
Incr Delay (d2), s/veh	3.4	1.4	2.5				0.0	2.0	2.0	2.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	14.0	11.0	12.4				0.0	9.0	9.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	37.0	38.1				0.0	15.3	15.3	2.5	0.0	0.0
LnGrp LOS	D	D	D				A	B	B	A	A	A
Approach Vol, veh/h		1692						977			616	
Approach Delay, s/veh		38.2						15.3			2.5	
Approach LOS		D						B			A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		36.0		54.0				54.0				
Change Period (Y+Rc), s		* 5.4		5.7				5.7				
Max Green Setting (Gmax), s		* 31		48.3				48.3				
Max Q Clear Time (g_c+I1), s		25.2		2.0				17.8				
Green Ext Time (p_c), s		4.2		5.2				7.5				
Intersection Summary												
HCM 6th Ctrl Delay			24.7									
HCM 6th LOS			C									

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1714	119	539	996	0	0	0	406
Future Volume (vph)	0	0	0	0	1714	119	539	996	0	0	0	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		5.4	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.99		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6346		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6346		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1863	129	586	1083	0	0	0	441
RTOR Reduction (vph)	0	0	0	0	11	0	62	0	0	0	0	79
Lane Group Flow (vph)	0	0	0	0	1981	0	524	1083	0	0	0	362
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					36.3		23.3	23.3				15.1
Effective Green, g (s)					36.3		23.3	23.3				15.1
Actuated g/C Ratio					0.40		0.26	0.26				0.17
Clearance Time (s)					5.4		5.4	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					2559		888	1316				467
v/s Ratio Prot					c0.31		0.15	c0.21				
v/s Ratio Perm												c0.13
v/c Ratio					0.77		0.59	0.82				0.78
Uniform Delay, d1					23.3		29.2	31.4				35.8
Progression Factor					0.96		1.00	1.00				1.00
Incremental Delay, d2					1.8		1.0	4.3				7.9
Delay (s)					24.2		30.2	35.7				43.7
Level of Service					C		C	D				D
Approach Delay (s)		0.0			24.2			33.8			43.7	
Approach LOS		A			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	187	1438	197	78	728	0	0	1116	270
Future Volume (veh/h)	0	0	0	187	1438	197	78	728	0	0	1116	270
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				203	1563	214	85	791	0	0	1213	293
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				634	2052	281	177	982	0	0	1867	833
Arrive On Green				0.36	0.36	0.36	0.53	0.53	0.00	0.00	0.53	0.53
Sat Flow, veh/h				1781	5765	789	348	1870	0	0	3647	1585
Grp Volume(v), veh/h				203	1308	469	85	791	0	0	1213	293
Grp Sat Flow(s),veh/h/ln				1781	1609	1728	348	1870	0	0	1777	1585
Q Serve(g_s), s				7.5	21.6	21.6	21.0	31.3	0.0	0.0	22.1	9.7
Cycle Q Clear(g_c), s				7.5	21.6	21.6	43.1	31.3	0.0	0.0	22.1	9.7
Prop In Lane				1.00		0.46	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				634	1717	615	177	982	0	0	1867	833
V/C Ratio(X)				0.32	0.76	0.76	0.48	0.81	0.00	0.00	0.65	0.35
Avail Cap(c_a), veh/h				634	1717	615	183	1012	0	0	1923	858
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.65	0.65
Uniform Delay (d), s/veh				21.1	25.6	25.6	30.9	17.6	0.0	0.0	15.4	12.4
Incr Delay (d2), s/veh				1.3	3.3	8.7	2.0	4.7	0.0	0.0	0.5	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				5.1	11.4	13.3	3.2	17.5	0.0	0.0	10.8	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				22.4	28.9	34.3	32.9	22.3	0.0	0.0	15.9	12.6
LnGrp LOS				C	C	C	C	C	A	A	B	B
Approach Vol, veh/h					1980			876			1506	
Approach Delay, s/veh					29.5			23.3			15.2	
Approach LOS					C			C			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		37.4		52.6				52.6				
Change Period (Y+Rc), s		* 5.4		* 5.3				* 5.3				
Max Green Setting (Gmax), s		* 31		* 49				* 49				
Max Q Clear Time (g_c+I1), s		23.6		24.1				45.1				
Green Ext Time (p_c), s		5.7		11.5				2.2				

Intersection Summary			
HCM 6th Ctrl Delay			23.3
HCM 6th LOS			C

Notes

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

HCM Unsignalized Intersection Capacity Analysis
51: 4th St & Project Dwy

05/04/2020

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	1701	0	0	0	0
Future Volume (Veh/h)	0	1701	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1849	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		202	200			
pX, platoon unblocked					0.79	
vC, conflicting volume	0				462	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1622				810	1084

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	SW 1
Volume Total	264	528	528	528	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1622	1700	1700	1700	1700
Volume to Capacity	0.00	0.31	0.31	0.31	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0				0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	0	1215	0	0	577
Future Vol, veh/h	0	0	1215	0	0	577
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1321	0	0	627

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1572	661	0	0	-	-
Stage 1	1321	-	-	-	-	-
Stage 2	251	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	-	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	-	-
Pot Cap-1 Maneuver	158	347	-	-	0	-
Stage 1	153	-	-	-	0	-
Stage 2	705	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	158	347	-	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	153	-	-	-	-	-
Stage 2	705	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	93	0	69	102	196	23	402	1766	0	0	773	13
Future Volume (veh/h)	93	0	69	102	196	23	402	1766	0	0	773	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h	101	0	75	111	213	25	437	1920	0	0	840	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	148	303	37	520	3860	0	0	2704	45
Arrive On Green	0.00	0.00	0.00	0.13	0.13	0.13	1.00	1.00	0.00	0.00	0.76	0.76
Sat Flow, veh/h		0		1104	2259	274	646	5274	0	0	3670	60
Grp Volume(v), veh/h		0.0		183	0	166	437	1920	0	0	417	437
Grp Sat Flow(s),veh/h/ln				1815	0	1821	646	1702	0	0	1777	1860
Q Serve(g_s), s				8.7	0.0	7.8	57.2	0.0	0.0	0.0	6.7	6.7
Cycle Q Clear(g_c), s				8.7	0.0	7.8	63.9	0.0	0.0	0.0	6.7	6.7
Prop In Lane				0.61		0.15	1.00		0.00	0.00		0.03
Lane Grp Cap(c), veh/h				243	0	244	520	3860	0	0	1343	1406
V/C Ratio(X)				0.75	0.00	0.68	0.84	0.50	0.00	0.00	0.31	0.31
Avail Cap(c_a), veh/h				403	0	405	520	3860	0	0	1343	1406
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.83	0.83	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.5	0.0	37.1	3.2	0.0	0.0	0.0	3.5	3.5
Incr Delay (d2), s/veh				4.6	0.0	3.3	12.8	0.4	0.0	0.0	0.6	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				6.2	0.0	5.7	3.1	0.2	0.0	0.0	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.1	0.0	40.5	16.0	0.4	0.0	0.0	4.1	4.1
LnGrp LOS				D	A	D	B	A	A	A	A	A
Approach Vol, veh/h					349			2357			854	
Approach Delay, s/veh					41.3			3.3			4.1	
Approach LOS					D			A			A	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		72.8		17.2		72.8						
Change Period (Y+Rc), s		* 4.8		* 5.1		* 4.8						
Max Green Setting (Gmax), s		* 50		* 20		* 50						
Max Q Clear Time (g_c+I1), s		8.7		10.7		65.9						
Green Ext Time (p_c), s		6.5		1.3		0.0						

Intersection Summary			
HCM 6th Ctrl Delay			7.2
HCM 6th LOS			A

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	267	225	126	1584	754	118
Future Volume (veh/h)	267	225	126	1584	754	118
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	290	245	137	1722	820	128
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	343	305	495	3584	1313	1113
Arrive On Green	0.19	0.19	0.70	0.70	1.00	1.00
Sat Flow, veh/h	1781	1585	592	5274	1870	1585
Grp Volume(v), veh/h	290	245	137	1722	820	128
Grp Sat Flow(s),veh/h/ln	1781	1585	592	1702	1870	1585
Q Serve(g_s), s	14.1	13.3	8.1	13.7	0.0	0.0
Cycle Q Clear(g_c), s	14.1	13.3	8.1	13.7	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	343	305	495	3584	1313	1113
V/C Ratio(X)	0.85	0.80	0.28	0.48	0.62	0.12
Avail Cap(c_a), veh/h	477	424	495	3584	1313	1113
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.93	0.93
Uniform Delay (d), s/veh	35.0	34.7	5.2	6.0	0.0	0.0
Incr Delay (d2), s/veh	9.7	7.5	1.4	0.5	2.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	9.7	8.1	1.8	6.2	1.4	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.8	42.2	6.6	6.5	2.1	0.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	535			1859	948	
Approach Delay, s/veh	43.6			6.5	1.8	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		68.2		21.8		68.2
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		56.4		24.1		56.4
Max Q Clear Time (g_c+I1), s		15.7		16.1		2.0
Green Ext Time (p_c), s		22.0		1.2		8.4
Intersection Summary						
HCM 6th Ctrl Delay			11.1			
HCM 6th LOS			B			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	250	1569	247	91	858	0	0	1234	433
Future Volume (veh/h)	0	0	0	250	1569	247	91	858	0	0	1234	433
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				272	1705	268	99	933	0	0	1341	471
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				784	1564	697	108	1579	0	0	1579	704
Arrive On Green				0.15	0.15	0.15	0.89	0.89	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1781	3554	1585	259	3647	0	0	3647	1585
Grp Volume(v), veh/h				272	1705	268	99	933	0	0	1341	471
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	259	1777	0	0	1777	1585
Q Serve(g_s), s				12.4	39.6	13.8	9.7	5.5	0.0	0.0	30.3	21.1
Cycle Q Clear(g_c), s				12.4	39.6	13.8	40.0	5.5	0.0	0.0	30.3	21.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				784	1564	697	108	1579	0	0	1579	704
V/C Ratio(X)				0.35	1.09	0.38	0.92	0.59	0.00	0.00	0.85	0.67
Avail Cap(c_a), veh/h				784	1564	697	108	1579	0	0	1579	704
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.09	0.09	0.09	0.63	0.63	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.8	38.5	27.4	23.6	3.1	0.0	0.0	22.3	19.8
Incr Delay (d2), s/veh				0.1	41.9	0.1	45.7	0.4	0.0	0.0	4.6	2.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				6.6	31.5	6.6	4.8	2.1	0.0	0.0	16.6	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.9	80.4	27.6	69.3	3.5	0.0	0.0	26.9	22.2
LnGrp LOS				C	F	C	E	A	A	A	C	C
Approach Vol, veh/h					2245			1032			1812	
Approach Delay, s/veh					67.6			9.8			25.7	
Approach LOS					E			A			C	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		45.0		45.0				45.0				
Change Period (Y+Rc), s		* 5.4		* 5				* 5				
Max Green Setting (Gmax), s		* 40		* 40				* 40				
Max Q Clear Time (g_c+I1), s		41.6		42.0				32.3				
Green Ext Time (p_c), s		0.0		0.0				5.9				

Intersection Summary				
HCM 6th Ctrl Delay			40.9	
HCM 6th LOS			D	

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	173	1630	191	85	1190	0	0	709	150
Future Volume (vph)	0	0	0	173	1630	191	85	1190	0	0	709	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.98			1.00			1.00	0.85
Flt Protected				0.95	1.00			1.00			1.00	1.00
Satd. Flow (prot)				1770	5005			3527			1863	1583
Flt Permitted				0.95	1.00			0.67			1.00	1.00
Satd. Flow (perm)				1770	5005			2377			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	188	1772	208	92	1293	0	0	771	163
RTOR Reduction (vph)	0	0	0	0	16	0	0	0	0	0	0	53
Lane Group Flow (vph)	0	0	0	188	1964	0	0	1385	0	0	771	110
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				29.6	29.6			50.0			50.0	50.0
Effective Green, g (s)				29.6	29.6			50.0			50.0	50.0
Actuated g/C Ratio				0.33	0.33			0.56			0.56	0.56
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				582	1646			1320			1035	879
v/s Ratio Prot					c0.39						0.41	
v/s Ratio Perm				0.11				c0.58				0.07
v/c Ratio				0.32	1.19			1.05			0.74	0.13
Uniform Delay, d1				22.7	30.2			20.0			15.2	9.6
Progression Factor				1.00	1.00			1.11			1.00	1.00
Incremental Delay, d2				1.5	93.2			33.3			4.9	0.3
Delay (s)				24.1	123.4			55.5			20.0	9.8
Level of Service				C	F			E			C	A
Approach Delay (s)		0.0			114.8			55.5			18.3	
Approach LOS		A			F			E			B	

Intersection Summary			
HCM 2000 Control Delay	76.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	121.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	250	2168	0	0	184	0
Future Volume (veh/h)	250	2168	0	0	184	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	272	2357			200	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4618			0	0
Arrive On Green	0.72	0.72			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2357			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	14.7				
Cycle Q Clear(g_c), s	0.0	14.7				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4618				
V/C Ratio(X)	0.00	0.51				
Avail Cap(c_a), veh/h	0	4618				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	5.7				
Incr Delay (d2), s/veh	0.0	0.4				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	6.1				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	6.1				
LnGrp LOS	A	A				
Approach Vol, veh/h		2357				
Approach Delay, s/veh		6.1				
Approach LOS		A				

Timer - Assigned Phs	6
Phs Duration (G+Y+Rc), s	69.0
Change Period (Y+Rc), s	* 4.4
Max Green Setting (Gmax), s	* 65
Max Q Clear Time (g_c+I1), s	16.7
Green Ext Time (p_c), s	46.0

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	391	1865	115	0	0	0	0	1534	232	166	679	0
Future Volume (veh/h)	391	1865	115	0	0	0	0	1534	232	166	679	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	425	2027	125				0	1667	252	180	738	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	616	2223	548				0	1891	285	250	1018	0
Arrive On Green	0.11	0.11	0.11				0.00	0.42	0.42	0.07	0.54	0.00
Sat Flow, veh/h	1781	6434	1585				0	4648	674	3456	1870	0
Grp Volume(v), veh/h	425	2027	125				0	1265	654	180	738	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1702	1749	1728	1870	0
Q Serve(g_s), s	20.7	28.0	6.5				0.0	30.7	31.1	4.6	26.7	0.0
Cycle Q Clear(g_c), s	20.7	28.0	6.5				0.0	30.7	31.1	4.6	26.7	0.0
Prop In Lane	1.00		1.00				0.00		0.39	1.00		0.00
Lane Grp Cap(c), veh/h	616	2223	548				0	1437	738	250	1018	0
V/C Ratio(X)	0.69	0.91	0.23				0.00	0.88	0.89	0.72	0.72	0.00
Avail Cap(c_a), veh/h	616	2223	548				0	1437	738	250	1018	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88				0.00	0.09	0.09	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.2	38.5	29.0				0.0	23.9	24.0	40.9	15.4	0.0
Incr Delay (d2), s/veh	5.5	6.3	0.9				0.0	0.8	1.6	9.7	4.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	13.9	16.5	4.3				0.0	12.8	13.5	3.8	15.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	44.9	29.8				0.0	24.7	25.6	50.6	19.9	0.0
LnGrp LOS	D	D	C				A	C	C	D	B	A
Approach Vol, veh/h		2577						1919			918	
Approach Delay, s/veh		43.4						25.0			25.9	
Approach LOS		D						C			C	
Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		36.0	11.0	43.0				54.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		31.1	6.5	38.0				49.0				
Max Q Clear Time (g_c+I1), s		30.0	6.6	33.1				28.7				
Green Ext Time (p_c), s		1.0	0.0	4.2				5.4				
Intersection Summary												
HCM 6th Ctrl Delay			34.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
7: Hill St & 4th St

05/04/2020

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	140	1753	357	0	0	0	0	966	209	125	1363	0
Future Volume (veh/h)	140	1753	357	0	0	0	0	966	209	125	1363	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	152	1905	388				0	1050	227	136	1482	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	142	1904	396				0	1512	326	187	1848	0
Arrive On Green	0.36	0.36	0.36				0.00	0.52	0.52	1.00	1.00	0.00
Sat Flow, veh/h	392	5256	1093				0	3002	626	433	3647	0
Grp Volume(v), veh/h	717	1134	594				0	640	637	136	1482	0
Grp Sat Flow(s),veh/h/ln	1851	1609	1674				0	1777	1758	433	1777	0
Q Serve(g_s), s	32.6	31.2	31.6				0.0	24.3	24.6	22.2	0.0	0.0
Cycle Q Clear(g_c), s	32.6	31.2	31.6				0.0	24.3	24.6	46.8	0.0	0.0
Prop In Lane	0.21		0.65				0.00		0.36	1.00		0.00
Lane Grp Cap(c), veh/h	670	1165	606				0	924	914	187	1848	0
V/C Ratio(X)	1.07	0.97	0.98				0.00	0.69	0.70	0.73	0.80	0.00
Avail Cap(c_a), veh/h	670	1165	606				0	924	914	187	1848	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.78	0.78	0.55	0.55	0.00
Uniform Delay (d), s/veh	28.7	28.3	28.4				0.0	16.2	16.3	14.6	0.0	0.0
Incr Delay (d2), s/veh	55.0	20.6	31.9				0.0	1.8	1.8	7.6	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	30.4	18.8	21.7				0.0	12.4	12.4	4.3	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.7	48.9	60.3				0.0	18.0	18.1	22.2	1.5	0.0
LnGrp LOS	F	D	E				A	B	B	C	A	A
Approach Vol, veh/h		2445						1277			1618	
Approach Delay, s/veh		61.9						18.0			3.2	
Approach LOS		E						B			A	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				52.0		38.0		52.0				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 47		32.6		* 47				
Max Q Clear Time (g_c+I1), s				48.8		34.6		26.6				
Green Ext Time (p_c), s				0.0		0.0		9.3				

Intersection Summary			
HCM 6th Ctrl Delay			33.6
HCM 6th LOS			C

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	254	1775	148	0	0	0	0	1131	147	43	814	0
Future Volume (veh/h)	254	1775	148	0	0	0	0	1131	147	43	814	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	276	1929	161				0	1229	160	47	885	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	237	1784	152				0	1768	229	64	774	0
Arrive On Green	0.10	0.10	0.10				0.00	0.56	0.56	0.18	0.18	0.00
Sat Flow, veh/h	745	5613	477				0	3257	410	39	1386	0
Grp Volume(v), veh/h	679	1084	603				0	688	701	932	0	0
Grp Sat Flow(s),veh/h/ln	1833	1609	1785				0	1777	1797	1425	0	0
Q Serve(g_s), s	28.6	28.6	28.6				0.0	25.1	25.4	24.9	0.0	0.0
Cycle Q Clear(g_c), s	28.6	28.6	28.6				0.0	25.1	25.4	50.3	0.0	0.0
Prop In Lane	0.41		0.27				0.00		0.23	0.05		0.00
Lane Grp Cap(c), veh/h	583	1022	567				0	993	1004	838	0	0
V/C Ratio(X)	1.17	1.06	1.06				0.00	0.69	0.70	1.11	0.00	0.00
Avail Cap(c_a), veh/h	583	1022	567				0	993	1004	838	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.09	0.09	0.09				0.00	1.00	1.00	0.70	0.00	0.00
Uniform Delay (d), s/veh	40.3	40.3	40.3				0.0	14.3	14.4	37.4	0.0	0.0
Incr Delay (d2), s/veh	76.7	29.7	32.4				0.0	4.0	4.0	62.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	31.1	18.5	20.9				0.0	13.6	13.8	43.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	117.0	70.0	72.7				0.0	18.3	18.4	99.8	0.0	0.0
LnGrp LOS	F	F	F				A	B	B	F	A	A
Approach Vol, veh/h		2366						1389			932	
Approach Delay, s/veh		84.2						18.3			99.8	
Approach LOS		F						B			F	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		34.0		56.0				56.0				
Change Period (Y+Rc), s		* 5.4		5.7				5.7				
Max Green Setting (Gmax), s		* 29		50.3				50.3				
Max Q Clear Time (g_c+I1), s		30.6		52.3				27.4				
Green Ext Time (p_c), s		0.0		0.0				10.9				

Intersection Summary		
HCM 6th Ctrl Delay		67.8
HCM 6th LOS		E

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1400	118	662	1578	0	0	0	909
Future Volume (vph)	0	0	0	0	1400	118	662	1578	0	0	0	909
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		4.5	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.99		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6333		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6333		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1522	128	720	1715	0	0	0	988
RTOR Reduction (vph)	0	0	0	0	15	0	58	0	0	0	0	69
Lane Group Flow (vph)	0	0	0	0	1635	0	662	1715	0	0	0	919
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					23.6		27.5	26.6				24.5
Effective Green, g (s)					23.6		27.5	26.6				24.5
Actuated g/C Ratio					0.26		0.31	0.30				0.27
Clearance Time (s)					5.4		4.5	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					1660		1048	1502				758
v/s Ratio Prot					c0.26		0.19	c0.34				
v/s Ratio Perm												c0.33
v/c Ratio					0.99		0.63	1.14				1.21
Uniform Delay, d1					33.0		26.9	31.7				32.8
Progression Factor					0.56		1.00	1.00				1.37
Incremental Delay, d2					14.2		1.2	72.3				105.7
Delay (s)					32.8		28.1	104.0				150.6
Level of Service					C		C	F				F
Approach Delay (s)		0.0			32.8			81.6			150.6	
Approach LOS		A			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	79.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	264	1170	275	110	1141	0	0	1399	154
Future Volume (veh/h)	0	0	0	264	1170	275	110	1141	0	0	1399	154
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				287	1272	299	120	1240	0	0	1521	167
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				507	1492	349	166	2120	0	0	2120	946
Arrive On Green				0.28	0.28	0.28	0.60	0.60	0.00	0.00	0.60	0.60
Sat Flow, veh/h				1781	5247	1228	292	3647	0	0	3647	1585
Grp Volume(v), veh/h				287	1170	401	120	1240	0	0	1521	167
Grp Sat Flow(s),veh/h/ln				1781	1609	1649	292	1777	0	0	1777	1585
Q Serve(g_s), s				12.4	20.6	20.7	26.5	19.5	0.0	0.0	27.2	4.3
Cycle Q Clear(g_c), s				12.4	20.6	20.7	53.7	19.5	0.0	0.0	27.2	4.3
Prop In Lane				1.00		0.74	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				507	1373	469	166	2120	0	0	2120	946
V/C Ratio(X)				0.57	0.85	0.86	0.72	0.58	0.00	0.00	0.72	0.18
Avail Cap(c_a), veh/h				507	1373	469	166	2120	0	0	2120	946
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.49	0.49
Uniform Delay (d), s/veh				27.5	30.4	30.5	35.5	11.2	0.0	0.0	12.8	8.2
Incr Delay (d2), s/veh				4.5	6.8	17.9	14.3	0.4	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				8.3	11.6	13.6	5.2	9.7	0.0	0.0	12.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.0	37.3	48.3	49.8	11.7	0.0	0.0	13.4	8.2
LnGrp LOS				C	D	D	D	B	A	A	B	A
Approach Vol, veh/h					1858			1360			1688	
Approach Delay, s/veh					38.8			15.0			12.9	
Approach LOS					D			B			B	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		31.0		59.0				59.0				
Change Period (Y+Rc), s		* 5.4		* 5.3				* 5.3				
Max Green Setting (Gmax), s		* 26		* 54				* 54				
Max Q Clear Time (g_c+I1), s		22.7		29.2				55.7				
Green Ext Time (p_c), s		2.4		14.1				0.0				

Intersection Summary	
HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	2251	0	0	0	0
Future Volume (Veh/h)	0	2251	0	0	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2447	0	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		202	200			
pX, platoon unblocked					0.70	
vC, conflicting volume	0				612	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1622				717	1084

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	SW 1
Volume Total	350	699	699	699	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1622	1700	1700	1700	1700
Volume to Capacity	0.00	0.41	0.41	0.41	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0				0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	0	1926	0	0	845
Future Vol, veh/h	0	0	1926	0	0	845
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	2093	0	0	918

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2460	1047	0	0	-	-
Stage 1	2093	-	-	-	-	-
Stage 2	367	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	-	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	-	-
Pot Cap-1 Maneuver	53	193	-	-	0	-
Stage 1	49	-	-	-	0	-
Stage 2	615	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	53	193	-	-	-	-
Mov Cap-2 Maneuver	45	-	-	-	-	-
Stage 1	49	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	NW		NE		SW	
HCM Control Delay, s	0		0		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWT
Capacity (veh/h)	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	-
HCM Lane LOS	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	33	0	107	278	225	60	284	850	1	1	713	19
Future Volume (veh/h)	33	0	107	278	225	60	284	850	1	1	713	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	0	116	302	245	65	309	924	1	1	775	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	0	0	482	428	114	409	2087	2	52	1982	54
Arrive On Green	0.00	0.00	0.00	0.29	0.29	0.29	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h		0		1688	1497	400	682	3643	4	0	3460	94
Grp Volume(v), veh/h		0.0		319	0	293	309	451	474	419	0	378
Grp Sat Flow(s),veh/h/ln				1786	0	1798	682	1777	1870	1869	0	1685
Q Serve(g_s), s				10.9	0.0	9.7	31.5	10.2	10.2	0.0	0.0	8.6
Cycle Q Clear(g_c), s				10.9	0.0	9.7	40.1	10.2	10.2	8.6	0.0	8.6
Prop In Lane				0.95		0.22	1.00		0.00	0.00		0.06
Lane Grp Cap(c), veh/h				510	0	514	409	1018	1071	1122	0	965
V/C Ratio(X)				0.63	0.00	0.57	0.75	0.44	0.44	0.37	0.00	0.39
Avail Cap(c_a), veh/h				510	0	514	409	1018	1071	1122	0	965
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00
Uniform Delay (d), s/veh				21.7	0.0	21.3	19.4	8.6	8.6	8.2	0.0	8.2
Incr Delay (d2), s/veh				5.7	0.0	4.5	11.4	1.3	1.2	1.0	0.0	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				7.4	0.0	6.7	8.1	5.5	5.8	5.1	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				27.5	0.0	25.8	30.8	9.9	9.8	9.2	0.0	9.4
LnGrp LOS				C	A	C	C	A	A	A	A	A
Approach Vol, veh/h					612			1234			797	
Approach Delay, s/veh					26.7			15.1			9.3	
Approach LOS					C			B			A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		44.9		25.1		44.9
Change Period (Y+Rc), s		* 4.8		* 5.1		* 4.8
Max Green Setting (Gmax), s		* 30		* 20		* 30
Max Q Clear Time (g_c+I1), s		10.6		12.9		42.1
Green Ext Time (p_c), s		5.0		2.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	52	110	167	993	818	364
Future Volume (veh/h)	52	110	167	993	818	364
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	120	182	1079	889	396
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	177	158	432	2718	1430	1212
Arrive On Green	0.10	0.10	0.76	0.76	1.00	1.00
Sat Flow, veh/h	1781	1585	430	3647	1870	1585
Grp Volume(v), veh/h	57	120	182	1079	889	396
Grp Sat Flow(s),veh/h/ln	1781	1585	430	1777	1870	1585
Q Serve(g_s), s	2.1	5.2	12.1	7.2	0.0	0.0
Cycle Q Clear(g_c), s	2.1	5.2	12.1	7.2	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	177	158	432	2718	1430	1212
V/C Ratio(X)	0.32	0.76	0.42	0.40	0.62	0.33
Avail Cap(c_a), veh/h	198	177	432	2718	1430	1212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.82	0.82
Uniform Delay (d), s/veh	29.3	30.7	3.4	2.8	0.0	0.0
Incr Delay (d2), s/veh	1.0	15.8	3.0	0.4	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	1.6	4.3	1.6	2.6	0.5	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.4	46.5	6.4	3.2	0.7	0.1
LnGrp LOS	C	D	A	A	A	A
Approach Vol, veh/h	177			1261	1285	
Approach Delay, s/veh	41.3			3.7	0.5	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		58.5		11.5		58.5
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		52.7		7.8		52.7
Max Q Clear Time (g_c+I1), s		14.1		7.2		2.0
Green Ext Time (p_c), s		14.8		0.0		11.4

Intersection Summary		
HCM 6th Ctrl Delay		4.6
HCM 6th LOS		A

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	219	1706	135	137	644	0	0	1143	407
Future Volume (veh/h)	0	0	0	219	1706	135	137	644	0	0	1143	407
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				238	1854	147	149	700	0	0	1242	442
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				724	1445	645	138	1698	0	0	1698	757
Arrive On Green				0.13	0.13	0.13	0.96	0.96	0.00	0.00	0.48	0.48
Sat Flow, veh/h				1781	3554	1585	293	3647	0	0	3647	1585
Grp Volume(v), veh/h				238	1854	147	149	700	0	0	1242	442
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	293	1777	0	0	1777	1585
Q Serve(g_s), s				10.9	36.6	7.5	17.7	1.3	0.0	0.0	25.3	18.2
Cycle Q Clear(g_c), s				10.9	36.6	7.5	43.0	1.3	0.0	0.0	25.3	18.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				724	1445	645	138	1698	0	0	1698	757
V/C Ratio(X)				0.33	1.28	0.23	1.08	0.41	0.00	0.00	0.73	0.58
Avail Cap(c_a), veh/h				724	1445	645	138	1698	0	0	1698	757
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.09	0.09	0.09	0.33	0.33	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.8	39.0	26.3	19.8	1.1	0.0	0.0	18.9	17.0
Incr Delay (d2), s/veh				0.1	127.8	0.1	67.7	0.1	0.0	0.0	1.6	1.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				5.9	53.3	3.5	7.0	0.6	0.0	0.0	13.4	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				27.9	166.8	26.4	87.5	1.1	0.0	0.0	20.5	18.2
LnGrp LOS				C	F	C	F	A	A	A	C	B
Approach Vol, veh/h					2239			849			1684	
Approach Delay, s/veh					142.8			16.3			19.9	
Approach LOS					F			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		42.0		48.0				48.0				
Change Period (Y+Rc), s		* 5.4		* 5				* 5				
Max Green Setting (Gmax), s		* 37		* 43				* 43				
Max Q Clear Time (g_c+I1), s		38.6		45.0				27.3				
Green Ext Time (p_c), s		0.0		0.0				9.6				

Intersection Summary			
HCM 6th Ctrl Delay			76.9
HCM 6th LOS			E

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	77	1689	95	102	756	0	0	472	316
Future Volume (vph)	0	0	0	77	1689	95	102	756	0	0	472	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.99			1.00			1.00	0.85
Flt Protected				0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)				1770	5045			3518			1863	1583
Flt Permitted				0.95	1.00			0.75			1.00	1.00
Satd. Flow (perm)				1770	5045			2645			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	84	1836	103	111	822	0	0	513	343
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	0	0	0	145
Lane Group Flow (vph)	0	0	0	84	1932	0	0	933	0	0	513	198
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				29.6	29.6			50.0			50.0	50.0
Effective Green, g (s)				29.6	29.6			50.0			50.0	50.0
Actuated g/C Ratio				0.33	0.33			0.56			0.56	0.56
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				582	1659			1469			1035	879
v/s Ratio Prot					c0.38						0.28	
v/s Ratio Perm				0.05				c0.35				0.12
v/c Ratio				0.14	1.16			0.64			0.50	0.22
Uniform Delay, d1				21.3	30.2			13.7			12.3	10.2
Progression Factor				1.00	1.00			0.62			1.00	1.00
Incremental Delay, d2				0.5	81.1			0.7			1.7	0.6
Delay (s)				21.8	111.3			9.2			14.0	10.8
Level of Service				C	F			A			B	B
Approach Delay (s)		0.0			107.6			9.2			12.7	
Approach LOS		A			F			A			B	

Intersection Summary			
HCM 2000 Control Delay	62.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	96.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	676	2188	0	0	69	0
Future Volume (veh/h)	676	2188	0	0	69	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	735	2378			75	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4904			0	0
Arrive On Green	0.76	0.76			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2378			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	12.5				
Cycle Q Clear(g_c), s	0.0	12.5				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4904				
V/C Ratio(X)	0.00	0.48				
Avail Cap(c_a), veh/h	0	4904				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	4.0				
Incr Delay (d2), s/veh	0.0	0.3				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	4.8				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	4.4				
LnGrp LOS	A	A				
Approach Vol, veh/h		2378				
Approach Delay, s/veh		4.4				
Approach LOS		A				

Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						73.0
Change Period (Y+Rc), s						* 4.4
Max Green Setting (Gmax), s						* 69
Max Q Clear Time (g_c+I1), s						14.5
Green Ext Time (p_c), s						51.8

Intersection Summary		
HCM 6th Ctrl Delay		4.4
HCM 6th LOS		A

Notes

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

HCM 6th Signalized Intersection Summary
6: Olive St & 4th St

05/04/2020

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	342	1542	183	0	0	0	0	928	108	142	445	0
Future Volume (veh/h)	342	1542	183	0	0	0	0	928	108	142	445	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	372	1676	199				0	1009	117	154	484	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	613	2215	546				0	1355	604	237	962	0
Arrive On Green	0.34	0.34	0.34				0.00	0.38	0.38	0.07	0.51	0.00
Sat Flow, veh/h	1781	6434	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	372	1676	199				0	1009	117	154	484	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	12.1	16.2	6.6				0.0	17.2	3.5	3.0	11.9	0.0
Cycle Q Clear(g_c), s	12.1	16.2	6.6				0.0	17.2	3.5	3.0	11.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	613	2215	546				0	1355	604	237	962	0
V/C Ratio(X)	0.61	0.76	0.36				0.00	0.74	0.19	0.65	0.50	0.00
Avail Cap(c_a), veh/h	613	2215	546				0	1355	604	272	962	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90				0.00	0.42	0.42	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.0	20.3	17.2				0.0	18.7	14.5	31.8	11.1	0.0
Incr Delay (d2), s/veh	4.0	2.2	1.7				0.0	1.6	0.3	4.4	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	7.6	8.3	4.1				0.0	8.5	1.9	2.5	7.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.0	22.6	18.9				0.0	20.3	14.8	36.2	13.0	0.0
LnGrp LOS	C	C	B				A	C	B	D	B	A
Approach Vol, veh/h		2247						1126			638	
Approach Delay, s/veh		22.3						19.7			18.6	
Approach LOS		C						B			B	

Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		29.0	9.3	31.7				41.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		24.1	5.5	26.0				36.0				
Max Q Clear Time (g_c+I1), s		18.2	5.0	19.2				13.9				
Green Ext Time (p_c), s		5.1	0.0	3.9				3.1				

Intersection Summary			
HCM 6th Ctrl Delay			21.0
HCM 6th LOS			C

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	182	1354	306	0	0	0	0	608	211	98	1247	0
Future Volume (veh/h)	182	1354	306	0	0	0	0	608	211	98	1247	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	198	1472	333				0	661	229	107	1355	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	204	1629	377				0	735	255	149	1966	0
Arrive On Green	0.33	0.33	0.33				0.00	0.55	0.55	1.00	1.00	0.00
Sat Flow, veh/h	621	4952	1147				0	1328	460	625	3647	0
Grp Volume(v), veh/h	587	934	483				0	0	890	107	1355	0
Grp Sat Flow(s),veh/h/ln	1839	1609	1664				0	0	1788	625	1777	0
Q Serve(g_s), s	28.3	24.7	24.7				0.0	0.0	39.9	9.9	0.0	0.0
Cycle Q Clear(g_c), s	28.3	24.7	24.7				0.0	0.0	39.9	49.8	0.0	0.0
Prop In Lane	0.34		0.69				0.00		0.26	1.00		0.00
Lane Grp Cap(c), veh/h	605	1058	547				0	0	989	149	1966	0
V/C Ratio(X)	0.97	0.88	0.88				0.00	0.00	0.90	0.72	0.69	0.00
Avail Cap(c_a), veh/h	605	1058	547				0	0	989	149	1966	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	0.38	0.69	0.69	0.00
Uniform Delay (d), s/veh	29.8	28.6	28.6				0.0	0.0	17.9	21.7	0.0	0.0
Incr Delay (d2), s/veh	29.8	10.6	18.3				0.0	0.0	4.7	10.9	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	21.3	14.1	15.9				0.0	0.0	18.5	3.9	0.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.6	39.2	46.9				0.0	0.0	22.6	32.6	0.7	0.0
LnGrp LOS	E	D	D				A	A	C	C	A	A
Approach Vol, veh/h		2003						890			1462	
Approach Delay, s/veh		47.0						22.6			3.0	
Approach LOS		D						C			A	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				55.0		35.0		55.0				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 50		29.6		* 50				
Max Q Clear Time (g_c+I1), s				51.8		30.3		41.9				
Green Ext Time (p_c), s				0.0		0.0		4.1				

Intersection Summary		
HCM 6th Ctrl Delay		27.3
HCM 6th LOS		C

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	185	1310	92	0	0	0	0	759	140	21	546	0
Future Volume (veh/h)	185	1310	92	0	0	0	0	759	140	21	546	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	201	1424	100				0	825	152	23	593	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	258	1968	141				0	1591	293	58	938	0
Arrive On Green	0.11	0.11	0.11				0.00	0.53	0.53	1.00	1.00	0.00
Sat Flow, veh/h	745	5695	407				0	3089	552	32	1766	0
Grp Volume(v), veh/h	494	789	441				0	489	488	616	0	0
Grp Sat Flow(s),veh/h/ln	1833	1609	1797				0	1777	1771	1798	0	0
Q Serve(g_s), s	23.6	21.3	21.3				0.0	16.0	16.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.6	21.3	21.3				0.0	16.0	16.0	0.0	0.0	0.0
Prop In Lane	0.41		0.23				0.00		0.31	0.04		0.00
Lane Grp Cap(c), veh/h	633	1112	621				0	944	941	997	0	0
V/C Ratio(X)	0.78	0.71	0.71				0.00	0.52	0.52	0.62	0.00	0.00
Avail Cap(c_a), veh/h	633	1112	621				0	944	941	997	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	0.17	0.17	0.17				0.00	1.00	1.00	0.90	0.00	0.00
Uniform Delay (d), s/veh	36.5	35.5	35.5				0.0	13.7	13.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.7	1.2				0.0	2.0	2.0	2.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	13.3	10.5	11.8				0.0	9.1	9.1	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	36.2	36.7				0.0	15.7	15.7	2.6	0.0	0.0
LnGrp LOS	D	D	D				A	B	B	A	A	A
Approach Vol, veh/h		1725						977			616	
Approach Delay, s/veh		36.9						15.7			2.6	
Approach LOS		D						B			A	
Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		36.5		53.5				53.5				
Change Period (Y+Rc), s		* 5.4		5.7				5.7				
Max Green Setting (Gmax), s		* 31		47.8				47.8				
Max Q Clear Time (g_c+I1), s		25.6		2.0				18.0				
Green Ext Time (p_c), s		4.3		5.2				7.5				
Intersection Summary												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1752	130	539	1044	0	0	0	406
Future Volume (vph)	0	0	0	0	1752	130	539	1044	0	0	0	406
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		5.4	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.99		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6342		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6342		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1904	141	586	1135	0	0	0	441
RTOR Reduction (vph)	0	0	0	0	12	0	62	0	0	0	0	80
Lane Group Flow (vph)	0	0	0	0	2033	0	524	1135	0	0	0	361
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					36.3		23.8	23.8				14.6
Effective Green, g (s)					36.3		23.8	23.8				14.6
Actuated g/C Ratio					0.40		0.26	0.26				0.16
Clearance Time (s)					5.4		5.4	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					2557		907	1344				452
v/s Ratio Prot					c0.32		0.15	c0.22				
v/s Ratio Perm												c0.13
v/c Ratio					0.80		0.58	0.84				0.80
Uniform Delay, d1					23.6		28.7	31.3				36.3
Progression Factor					0.91		1.00	1.00				1.00
Incremental Delay, d2					2.0		0.9	5.0				9.6
Delay (s)					23.5		29.6	36.4				45.9
Level of Service					C		C	D				D
Approach Delay (s)		0.0			23.5			34.1			45.9	
Approach LOS		A			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	187	1444	197	83	728	0	0	1141	308
Future Volume (veh/h)	0	0	0	187	1444	197	83	728	0	0	1141	308
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				203	1570	214	90	791	0	0	1240	335
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				607	1966	268	176	1010	0	0	1920	856
Arrive On Green				0.34	0.34	0.34	0.54	0.54	0.00	0.00	0.54	0.54
Sat Flow, veh/h				1781	5768	786	326	1870	0	0	3647	1585
Grp Volume(v), veh/h				203	1313	471	90	791	0	0	1240	335
Grp Sat Flow(s),veh/h/ln				1781	1609	1729	326	1870	0	0	1777	1585
Q Serve(g_s), s				7.6	22.2	22.2	24.3	30.3	0.0	0.0	22.2	11.1
Cycle Q Clear(g_c), s				7.6	22.2	22.2	46.5	30.3	0.0	0.0	22.2	11.1
Prop In Lane				1.00		0.45	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				607	1645	589	176	1010	0	0	1920	856
V/C Ratio(X)				0.33	0.80	0.80	0.51	0.78	0.00	0.00	0.65	0.39
Avail Cap(c_a), veh/h				607	1645	589	176	1012	0	0	1923	858
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.66	0.66
Uniform Delay (d), s/veh				22.1	26.9	26.9	31.0	16.5	0.0	0.0	14.6	12.1
Incr Delay (d2), s/veh				1.5	4.1	10.8	2.5	4.1	0.0	0.0	0.5	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				5.3	11.9	14.0	3.4	16.7	0.0	0.0	10.8	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.5	31.0	37.7	33.5	20.5	0.0	0.0	15.1	12.3
LnGrp LOS				C	C	D	C	C	A	A	B	B
Approach Vol, veh/h					1987			881			1575	
Approach Delay, s/veh					31.8			21.9			14.5	
Approach LOS					C			C			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		36.1		53.9				53.9				
Change Period (Y+Rc), s		* 5.4		* 5.3				* 5.3				
Max Green Setting (Gmax), s		* 31		* 49				* 49				
Max Q Clear Time (g_c+I1), s		24.2		24.2				48.5				
Green Ext Time (p_c), s		5.3		12.0				0.2				

Intersection Summary				
HCM 6th Ctrl Delay			23.7	
HCM 6th LOS			C	

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	119	1701	0	0	154	0
Future Volume (Veh/h)	119	1701	0	0	154	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	1849	0	0	167	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		202	200			
pX, platoon unblocked					0.77	
vC, conflicting volume	0				720	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				77	100
cM capacity (veh/h)	1622				729	1084

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	SW 1
Volume Total	393	528	528	528	167
Volume Left	129	0	0	0	167
Volume Right	0	0	0	0	0
cSH	1622	1700	1700	1700	729
Volume to Capacity	0.08	0.31	0.31	0.31	0.23
Queue Length 95th (ft)	6	0	0	0	22
Control Delay (s)	2.9	0.0	0.0	0.0	11.4
Lane LOS	A				B
Approach Delay (s)	0.6				11.4
Approach LOS					B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	75	1215	60	24	590
Future Vol, veh/h	0	75	1215	60	24	590
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	82	1321	65	26	641

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1662	693	0	0	1386	0
Stage 1	1354	-	-	-	-	-
Stage 2	308	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	142	331	-	-	254	-
Stage 1	146	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	119	331	-	-	254	-
Mov Cap-2 Maneuver	119	-	-	-	-	-
Stage 1	146	-	-	-	-	-
Stage 2	554	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	19.4	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	331	254	-
HCM Lane V/C Ratio	-	-	0.246	0.103	-
HCM Control Delay (s)	-	-	19.4	20.8	-
HCM Lane LOS	-	-	C	C	-
HCM 95th %tile Q(veh)	-	-	1	0.3	-

HCM 6th Signalized Intersection Summary
1: Olive St & 2nd St

05/04/2020

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	93	0	77	142	205	23	413	1783	0	0	806	13
Future Volume (veh/h)	93	0	77	142	205	23	413	1783	0	0	806	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h	101	0	84	154	223	25	449	1938	0	0	876	14
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h	0	0	0	199	310	36	490	3778	0	0	2649	42
Arrive On Green	0.00	0.00	0.00	0.15	0.15	0.15	1.00	1.00	0.00	0.00	0.74	0.74
Sat Flow, veh/h		0		1325	2069	237	625	5274	0	0	3673	57
Grp Volume(v), veh/h		0.0		210	0	192	449	1938	0	0	435	455
Grp Sat Flow(s),veh/h/ln				1804	0	1828	625	1702	0	0	1777	1860
Q Serve(g_s), s				10.1	0.0	9.0	59.0	0.0	0.0	0.0	7.6	7.6
Cycle Q Clear(g_c), s				10.1	0.0	9.0	66.6	0.0	0.0	0.0	7.6	7.6
Prop In Lane				0.73		0.13	1.00		0.00	0.00		0.03
Lane Grp Cap(c), veh/h				271	0	274	490	3778	0	0	1315	1376
V/C Ratio(X)				0.77	0.00	0.70	0.92	0.51	0.00	0.00	0.33	0.33
Avail Cap(c_a), veh/h				401	0	406	490	3778	0	0	1315	1376
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.82	0.82	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.8	0.0	36.3	6.4	0.0	0.0	0.0	4.0	4.0
Incr Delay (d2), s/veh				5.5	0.0	3.3	21.2	0.4	0.0	0.0	0.7	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				7.0	0.0	6.3	4.5	0.3	0.0	0.0	3.9	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				42.2	0.0	39.6	27.6	0.4	0.0	0.0	4.7	4.7
LnGrp LOS				D	A	D	C	A	A	A	A	A
Approach Vol, veh/h					402			2387			890	
Approach Delay, s/veh					41.0			5.5			4.7	
Approach LOS					D			A			A	

Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		71.4		18.6		71.4
Change Period (Y+Rc), s		* 4.8		* 5.1		* 4.8
Max Green Setting (Gmax), s		* 50		* 20		* 50
Max Q Clear Time (g_c+I1), s		9.6		12.1		68.6
Green Ext Time (p_c), s		6.8		1.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

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

Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	267	225	127	1611	835	118
Future Volume (veh/h)	267	225	127	1611	835	118
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	290	245	138	1751	908	128
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	339	301	464	3597	1317	1116
Arrive On Green	0.19	0.19	0.70	0.70	1.00	1.00
Sat Flow, veh/h	1781	1585	545	5274	1870	1585
Grp Volume(v), veh/h	290	245	138	1751	908	128
Grp Sat Flow(s),veh/h/ln	1781	1585	545	1702	1870	1585
Q Serve(g_s), s	14.2	13.3	9.0	13.9	0.0	0.0
Cycle Q Clear(g_c), s	14.2	13.3	9.0	13.9	0.0	0.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	339	301	464	3597	1317	1116
V/C Ratio(X)	0.86	0.81	0.30	0.49	0.69	0.11
Avail Cap(c_a), veh/h	426	379	464	3597	1317	1116
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.91	0.91
Uniform Delay (d), s/veh	35.3	34.9	5.3	6.0	0.0	0.0
Incr Delay (d2), s/veh	13.2	10.3	1.6	0.5	2.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	10.1	8.4	1.9	6.3	1.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.5	45.3	6.9	6.5	2.7	0.2
LnGrp LOS	D	D	A	A	A	A
Approach Vol, veh/h	535			1889	1036	
Approach Delay, s/veh	47.0			6.5	2.4	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		68.4		21.6		68.4
Change Period (Y+Rc), s		5.0		4.5		5.0
Max Green Setting (Gmax), s		59.0		21.5		59.0
Max Q Clear Time (g_c+I1), s		15.9		16.2		2.0
Green Ext Time (p_c), s		23.5		0.9		10.1
Intersection Summary						
HCM 6th Ctrl Delay			11.5			
HCM 6th LOS			B			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	250	1623	276	94	859	0	0	1234	433
Future Volume (veh/h)	0	0	0	250	1623	276	94	859	0	0	1234	433
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				272	1764	300	102	934	0	0	1341	471
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				804	1603	715	103	1540	0	0	1540	687
Arrive On Green				0.15	0.15	0.15	0.87	0.87	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1781	3554	1585	259	3647	0	0	3647	1585
Grp Volume(v), veh/h				272	1764	300	102	934	0	0	1341	471
Grp Sat Flow(s),veh/h/ln				1781	1777	1585	259	1777	0	0	1777	1585
Q Serve(g_s), s				12.3	40.6	15.5	8.1	6.6	0.0	0.0	30.9	21.6
Cycle Q Clear(g_c), s				12.3	40.6	15.5	39.0	6.6	0.0	0.0	30.9	21.6
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				804	1603	715	103	1540	0	0	1540	687
V/C Ratio(X)				0.34	1.10	0.42	0.99	0.61	0.00	0.00	0.87	0.69
Avail Cap(c_a), veh/h				804	1603	715	103	1540	0	0	1540	687
HCM Platoon Ratio				0.33	0.33	0.33	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.09	0.09	0.09	0.61	0.61	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.3	38.3	27.6	24.6	3.8	0.0	0.0	23.2	20.6
Incr Delay (d2), s/veh				0.1	46.2	0.2	65.4	0.4	0.0	0.0	5.7	2.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				6.6	33.6	7.3	5.4	2.4	0.0	0.0	17.2	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.4	84.5	27.8	90.0	4.3	0.0	0.0	28.9	23.4
LnGrp LOS				C	F	C	F	A	A	A	C	C
Approach Vol, veh/h					2336			1036			1812	
Approach Delay, s/veh					70.5			12.7			27.5	
Approach LOS					E			B			C	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	46.0	44.0	44.0
Change Period (Y+Rc), s	* 5.4	* 5	* 5
Max Green Setting (Gmax), s	* 41	* 39	* 39
Max Q Clear Time (g_c+I1), s	42.6	41.0	32.9
Green Ext Time (p_c), s	0.0	0.0	4.8

Intersection Summary	
HCM 6th Ctrl Delay	43.9
HCM 6th LOS	D

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	173	1656	191	142	1227	0	0	709	150
Future Volume (vph)	0	0	0	173	1656	191	142	1227	0	0	709	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.4	5.4			5.0			5.0	5.0
Lane Util. Factor				1.00	0.91			0.95			1.00	1.00
Frt				1.00	0.98			1.00			1.00	0.85
Flt Protected				0.95	1.00			0.99			1.00	1.00
Satd. Flow (prot)				1770	5006			3521			1863	1583
Flt Permitted				0.95	1.00			0.58			1.00	1.00
Satd. Flow (perm)				1770	5006			2047			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	188	1800	208	154	1334	0	0	771	163
RTOR Reduction (vph)	0	0	0	0	15	0	0	0	0	0	0	40
Lane Group Flow (vph)	0	0	0	188	1993	0	0	1488	0	0	771	123
Turn Type				Perm	NA		pm+pt	NA			NA	Perm
Protected Phases					2		7	4			8	
Permitted Phases				2			4					8
Actuated Green, G (s)				29.6	29.6			50.0			50.0	50.0
Effective Green, g (s)				29.6	29.6			50.0			50.0	50.0
Actuated g/C Ratio				0.33	0.33			0.56			0.56	0.56
Clearance Time (s)				5.4	5.4			5.0			5.0	5.0
Vehicle Extension (s)				3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)				582	1646			1137			1035	879
v/s Ratio Prot					c0.40						0.41	
v/s Ratio Perm				0.11				c0.73				0.08
v/c Ratio				0.32	1.21			1.31			0.74	0.14
Uniform Delay, d1				22.7	30.2			20.0			15.2	9.6
Progression Factor				1.00	1.00			1.12			1.00	1.00
Incremental Delay, d2				1.5	100.7			142.3			4.9	0.3
Delay (s)				24.1	130.9			164.7			20.0	10.0
Level of Service				C	F			F			C	A
Approach Delay (s)		0.0			121.7			164.7			18.3	
Approach LOS		A			F			F			B	

Intersection Summary			
HCM 2000 Control Delay	114.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.9
Intersection Capacity Utilization	124.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
5: 4th St & Lower Grand Ave

05/04/2020

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	250	2328	0	0	184	0
Future Volume (veh/h)	250	2328	0	0	184	0
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00				1.00	1.00
Parking Bus, Adj	1.00	1.00			1.00	1.00
Work Zone On Approach		No			No	
Adj Sat Flow, veh/h/ln	1870	1870			1870	0
Adj Flow Rate, veh/h	272	2530			200	0
Peak Hour Factor	0.92	0.92			0.92	0.92
Percent Heavy Veh, %	2	2			2	0
Cap, veh/h	0	4690			0	0
Arrive On Green	0.73	0.73			0.00	0.00
Sat Flow, veh/h	0	6696			0	
Grp Volume(v), veh/h	0	2530			0.0	
Grp Sat Flow(s),veh/h/ln	0	1609				
Q Serve(g_s), s	0.0	15.8				
Cycle Q Clear(g_c), s	0.0	15.8				
Prop In Lane	0.00					
Lane Grp Cap(c), veh/h	0	4690				
V/C Ratio(X)	0.00	0.54				
Avail Cap(c_a), veh/h	0	4690				
HCM Platoon Ratio	1.00	1.00				
Upstream Filter(I)	0.00	1.00				
Uniform Delay (d), s/veh	0.0	5.5				
Incr Delay (d2), s/veh	0.0	0.4				
Initial Q Delay(d3),s/veh	0.0	0.0				
%ile BackOfQ(85%),veh/ln	0.0	6.4				
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	5.9				
LnGrp LOS	A	A				
Approach Vol, veh/h		2530				
Approach Delay, s/veh		5.9				
Approach LOS		A				

Timer - Assigned Phs						6
Phs Duration (G+Y+Rc), s						70.0
Change Period (Y+Rc), s						* 4.4
Max Green Setting (Gmax), s						* 66
Max Q Clear Time (g_c+I1), s						17.8
Green Ext Time (p_c), s						46.6

Intersection Summary		
HCM 6th Ctrl Delay		5.9
HCM 6th LOS		A

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	399	2017	115	0	0	0	0	1559	314	218	679	0
Future Volume (veh/h)	399	2017	115	0	0	0	0	1559	314	218	679	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	434	2192	125				0	1695	341	237	738	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	616	2223	548				0	1770	352	276	1018	0
Arrive On Green	0.11	0.11	0.11				0.00	0.41	0.41	0.08	0.54	0.00
Sat Flow, veh/h	1781	6434	1585				0	4439	850	3456	1870	0
Grp Volume(v), veh/h	434	2192	125				0	1347	689	237	738	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1702	1717	1728	1870	0
Q Serve(g_s), s	21.1	30.6	6.5				0.0	34.5	35.3	6.1	26.7	0.0
Cycle Q Clear(g_c), s	21.1	30.6	6.5				0.0	34.5	35.3	6.1	26.7	0.0
Prop In Lane	1.00		1.00				0.00		0.50	1.00		0.00
Lane Grp Cap(c), veh/h	616	2223	548				0	1411	712	276	1018	0
V/C Ratio(X)	0.71	0.99	0.23				0.00	0.96	0.97	0.86	0.72	0.00
Avail Cap(c_a), veh/h	616	2223	548				0	1411	712	276	1018	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.86				0.00	0.09	0.09	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.5	39.6	29.0				0.0	25.5	25.8	40.9	15.4	0.0
Incr Delay (d2), s/veh	5.8	14.7	0.8				0.0	2.2	5.0	22.5	4.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	14.2	19.1	4.3				0.0	14.7	15.7	5.3	15.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.2	54.3	29.8				0.0	27.7	30.8	63.4	19.9	0.0
LnGrp LOS	D	D	C				A	C	C	E	B	A
Approach Vol, veh/h		2751						2036			975	
Approach Delay, s/veh		51.2						28.8			30.5	
Approach LOS		D						C			C	

Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		36.0	11.7	42.3				54.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		31.1	7.2	37.3				49.0				
Max Q Clear Time (g_c+I1), s		32.6	8.1	37.3				28.7				
Green Ext Time (p_c), s		0.0	0.0	0.0				5.4				

Intersection Summary			
HCM 6th Ctrl Delay			39.7
HCM 6th LOS			D

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	144	1869	448	0	0	0	0	966	209	125	1363	0
Future Volume (veh/h)	144	1869	448	0	0	0	0	966	209	125	1363	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	157	2032	487				0	1050	227	136	1482	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	138	1906	463				0	1480	319	180	1808	0
Arrive On Green	0.37	0.37	0.37				0.00	0.51	0.51	1.00	1.00	0.00
Sat Flow, veh/h	369	5107	1240				0	3002	626	433	3647	0
Grp Volume(v), veh/h	787	1242	647				0	640	637	136	1482	0
Grp Sat Flow(s),veh/h/ln	1852	1609	1647				0	1777	1758	433	1777	0
Q Serve(g_s), s	33.6	33.6	33.6				0.0	24.9	25.1	20.7	0.0	0.0
Cycle Q Clear(g_c), s	33.6	33.6	33.6				0.0	24.9	25.1	45.8	0.0	0.0
Prop In Lane	0.20		0.75				0.00		0.36	1.00		0.00
Lane Grp Cap(c), veh/h	691	1201	615				0	904	894	180	1808	0
V/C Ratio(X)	1.14	1.03	1.05				0.00	0.71	0.71	0.76	0.82	0.00
Avail Cap(c_a), veh/h	691	1201	615				0	904	894	180	1808	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.78	0.78	0.52	0.52	0.00
Uniform Delay (d), s/veh	28.2	28.2	28.2				0.0	17.0	17.0	15.3	0.0	0.0
Incr Delay (d2), s/veh	79.0	35.2	50.7				0.0	2.0	2.1	9.3	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	38.0	23.1	26.9				0.0	12.8	12.8	4.4	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	107.2	63.4	78.9				0.0	19.0	19.1	24.6	1.7	0.0
LnGrp LOS	F	F	F				A	B	B	C	A	A
Approach Vol, veh/h		2676						1277			1618	
Approach Delay, s/veh		80.1						19.0			3.6	
Approach LOS		F						B			A	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				51.0		39.0		51.0				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 46		33.6		* 46				
Max Q Clear Time (g_c+I1), s				47.8		35.6		27.1				
Green Ext Time (p_c), s				0.0		0.0		8.9				
Intersection Summary												
HCM 6th Ctrl Delay			43.9									
HCM 6th LOS			D									
Notes												

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	348	1797	148	0	0	0	0	1131	147	43	814	0
Future Volume (veh/h)	348	1797	148	0	0	0	0	1131	147	43	814	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	378	1953	161				0	1229	160	47	885	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	329	1839	154				0	1698	220	61	704	0
Arrive On Green	0.11	0.11	0.11				0.00	0.54	0.54	0.18	0.18	0.00
Sat Flow, veh/h	967	5409	452				0	3257	410	35	1312	0
Grp Volume(v), veh/h	712	1142	637				0	688	701	932	0	0
Grp Sat Flow(s),veh/h/ln	1822	1609	1789				0	1777	1797	1347	0	0
Q Serve(g_s), s	30.6	30.6	30.6				0.0	26.4	26.7	21.6	0.0	0.0
Cycle Q Clear(g_c), s	30.6	30.6	30.6				0.0	26.4	26.7	48.3	0.0	0.0
Prop In Lane	0.53		0.25				0.00		0.23	0.05		0.00
Lane Grp Cap(c), veh/h	619	1094	608				0	954	964	765	0	0
V/C Ratio(X)	1.15	1.04	1.05				0.00	0.72	0.73	1.22	0.00	0.00
Avail Cap(c_a), veh/h	619	1094	608				0	954	964	765	0	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	0.09	0.09	0.09				0.00	1.00	1.00	0.70	0.00	0.00
Uniform Delay (d), s/veh	40.0	40.0	40.0				0.0	15.8	15.8	37.8	0.0	0.0
Incr Delay (d2), s/veh	69.4	23.0	26.3				0.0	4.7	4.8	106.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	31.3	18.4	21.1				0.0	14.4	14.8	53.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.4	62.9	66.3				0.0	20.5	20.6	144.4	0.0	0.0
LnGrp LOS	F	F	F				A	C	C	F	A	A
Approach Vol, veh/h		2492						1389			932	
Approach Delay, s/veh		77.1						20.6			144.4	
Approach LOS		E						C			F	

Timer - Assigned Phs	2	4	8
Phs Duration (G+Y+Rc), s	36.0	54.0	54.0
Change Period (Y+Rc), s	* 5.4	5.7	5.7
Max Green Setting (Gmax), s	* 31	48.3	48.3
Max Q Clear Time (g_c+I1), s	32.6	50.3	28.7
Green Ext Time (p_c), s	0.0	0.0	10.1

Intersection Summary	
HCM 6th Ctrl Delay	73.8
HCM 6th LOS	E

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	0	0	0	0	1459	142	662	1661	0	0	0	909
Future Volume (vph)	0	0	0	0	1459	142	662	1661	0	0	0	909
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					5.4		4.5	5.4				4.5
Lane Util. Factor					0.86		0.97	0.91				0.88
Frt					0.99		1.00	1.00				0.85
Flt Protected					1.00		0.95	1.00				1.00
Satd. Flow (prot)					6323		3433	5085				2787
Flt Permitted					1.00		0.95	1.00				1.00
Satd. Flow (perm)					6323		3433	5085				2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	1586	154	720	1805	0	0	0	988
RTOR Reduction (vph)	0	0	0	0	17	0	58	0	0	0	0	70
Lane Group Flow (vph)	0	0	0	0	1723	0	662	1805	0	0	0	918
Turn Type					NA		Prot	NA				Perm
Protected Phases					2		7	4				
Permitted Phases												1
Actuated Green, G (s)					24.6		27.5	26.6				23.5
Effective Green, g (s)					24.6		27.5	26.6				23.5
Actuated g/C Ratio					0.27		0.31	0.30				0.26
Clearance Time (s)					5.4		4.5	5.4				4.5
Vehicle Extension (s)					3.0		3.0	3.0				3.0
Lane Grp Cap (vph)					1728		1048	1502				727
v/s Ratio Prot					c0.27		0.19	c0.35				
v/s Ratio Perm												c0.33
v/c Ratio					1.00		0.63	1.20				1.26
Uniform Delay, d1					32.7		26.9	31.7				33.2
Progression Factor					0.56		1.00	1.00				1.38
Incremental Delay, d2					16.1		1.2	97.4				127.3
Delay (s)					34.4		28.1	129.1				173.3
Level of Service					C		C	F				F
Approach Delay (s)		0.0			34.4			100.3			173.3	
Approach LOS		A			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	92.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.3
Intersection Capacity Utilization	86.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	264	1184	275	120	1141	0	0	1430	213
Future Volume (veh/h)	0	0	0	264	1184	275	120	1141	0	0	1430	213
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				287	1287	299	130	1240	0	0	1554	232
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				507	1496	346	155	2120	0	0	2120	946
Arrive On Green				0.28	0.28	0.28	0.60	0.60	0.00	0.00	0.60	0.60
Sat Flow, veh/h				1781	5259	1217	265	3647	0	0	3647	1585
Grp Volume(v), veh/h				287	1180	406	130	1240	0	0	1554	232
Grp Sat Flow(s),veh/h/ln				1781	1609	1651	265	1777	0	0	1777	1585
Q Serve(g_s), s				12.4	20.9	21.0	25.5	19.5	0.0	0.0	28.2	6.2
Cycle Q Clear(g_c), s				12.4	20.9	21.0	53.7	19.5	0.0	0.0	28.2	6.2
Prop In Lane				1.00		0.74	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				507	1373	470	155	2120	0	0	2120	946
V/C Ratio(X)				0.57	0.86	0.86	0.84	0.58	0.00	0.00	0.73	0.25
Avail Cap(c_a), veh/h				507	1373	470	155	2120	0	0	2120	946
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	1.00	1.00	1.00	1.00	0.00	0.00	0.46	0.46
Uniform Delay (d), s/veh				27.5	30.5	30.5	37.6	11.2	0.0	0.0	13.0	8.6
Incr Delay (d2), s/veh				4.5	7.2	18.6	31.3	0.4	0.0	0.0	0.6	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln				8.3	11.8	13.8	6.4	9.7	0.0	0.0	12.4	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.0	37.7	49.1	68.9	11.7	0.0	0.0	13.6	8.6
LnGrp LOS				C	D	D	E	B	A	A	B	A
Approach Vol, veh/h					1873			1370			1786	
Approach Delay, s/veh					39.3			17.1			13.0	
Approach LOS					D			B			B	

Timer - Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		31.0		59.0				59.0				
Change Period (Y+Rc), s		* 5.4		* 5.3				* 5.3				
Max Green Setting (Gmax), s		* 26		* 54				* 54				
Max Q Clear Time (g_c+I1), s		23.0		30.2				55.7				
Green Ext Time (p_c), s		2.2		14.4				0.0				

Intersection Summary		
HCM 6th Ctrl Delay		23.9
HCM 6th LOS		C

Notes

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	325	2251	0	0	240	0
Future Volume (Veh/h)	325	2251	0	0	240	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	353	2447	0	0	261	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		202	200			
pX, platoon unblocked					0.67	
vC, conflicting volume	0				1318	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				0	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				51	100
cM capacity (veh/h)	1622				534	1084

Direction, Lane #	SE 1	SE 2	SE 3	SE 4	SW 1
Volume Total	703	699	699	699	261
Volume Left	353	0	0	0	261
Volume Right	0	0	0	0	0
cSH	1622	1700	1700	1700	534
Volume to Capacity	0.22	0.41	0.41	0.41	0.49
Queue Length 95th (ft)	21	0	0	0	67
Control Delay (s)	5.0	0.0	0.0	0.0	18.0
Lane LOS	A				C
Approach Delay (s)	1.3				18.0
Approach LOS					C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.7

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	28	1926	33	28	908
Future Vol, veh/h	0	28	1926	33	28	908
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	30	2093	36	30	987

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2566	1065	0	0	2129	0
Stage 1	2111	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Critical Hdwy	5.74	7.14	-	-	5.34	-
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	-	-	3.12	-
Pot Cap-1 Maneuver	46	188	-	-	107	-
Stage 1	48	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	17	188	-	-	107	-
Mov Cap-2 Maneuver	17	-	-	-	-	-
Stage 1	48	-	-	-	-	-
Stage 2	210	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	27.8	0	1.5
HCM LOS	D		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	188	107	-
HCM Lane V/C Ratio	-	-	0.162	0.284	-
HCM Control Delay (s)	-	-	27.8	51.5	-
HCM Lane LOS	-	-	D	F	-
HCM 95th %tile Q(veh)	-	-	0.6	1.1	-

HCM 6th Signalized Intersection Summary
6: Olive St & 4th St

03/05/2020

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	162	705	167	0	0	0	0	494	92	43	186	0
Future Volume (veh/h)	162	705	167	0	0	0	0	494	92	43	186	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	176	766	182				0	537	100	47	202	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	664	2399	591				0	1346	600	148	908	0
Arrive On Green	0.37	0.37	0.37				0.00	0.38	0.38	0.04	0.49	0.00
Sat Flow, veh/h	1781	6434	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	176	766	182				0	537	100	47	202	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	4.8	5.9	5.7				0.0	7.7	2.9	0.9	4.4	0.0
Cycle Q Clear(g_c), s	4.8	5.9	5.7				0.0	7.7	2.9	0.9	4.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	664	2399	591				0	1346	600	148	908	0
V/C Ratio(X)	0.26	0.32	0.31				0.00	0.40	0.17	0.32	0.22	0.00
Avail Cap(c_a), veh/h	664	2399	591				0	1346	600	272	908	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98				0.00	0.72	0.72	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.3	15.6	15.6				0.0	15.9	14.4	32.5	10.4	0.0
Incr Delay (d2), s/veh	1.0	0.3	1.3				0.0	0.6	0.4	1.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	3.4	3.6	3.6				0.0	4.6	1.9	0.7	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.2	16.0	16.9				0.0	16.6	14.9	33.7	10.9	0.0
LnGrp LOS	B	B	B				A	B	B	C	B	A
Approach Vol, veh/h		1124						637			249	
Approach Delay, s/veh		16.2						16.3			15.2	
Approach LOS		B						B			B	
Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		31.0	7.5	31.5				39.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		26.1	5.5	24.0				34.0				
Max Q Clear Time (g_c+I1), s		7.9	2.9	9.7				6.4				
Green Ext Time (p_c), s		6.3	0.0	3.4				1.2				
Intersection Summary												
HCM 6th Ctrl Delay			16.1									
HCM 6th LOS			B									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	93	610	153	0	0	0	0	303	78	78	857	0
Future Volume (veh/h)	93	610	153	0	0	0	0	303	78	78	857	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	101	663	166				0	329	85	85	932	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	280	1951	501				0	518	134	246	1283	0
Arrive On Green	0.52	0.52	0.52				0.00	0.36	0.36	0.72	0.72	0.00
Sat Flow, veh/h	538	3744	961				0	1433	370	972	3647	0
Grp Volume(v), veh/h	346	290	293				0	0	414	85	932	0
Grp Sat Flow(s),veh/h/ln	1843	1702	1697				0	0	1804	972	1777	0
Q Serve(g_s), s	10.0	8.9	9.0				0.0	0.0	17.1	6.3	13.8	0.0
Cycle Q Clear(g_c), s	10.0	8.9	9.0				0.0	0.0	17.1	23.4	13.8	0.0
Prop In Lane	0.29		0.57				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	961	887	885				0	0	651	246	1283	0
V/C Ratio(X)	0.36	0.33	0.33				0.00	0.00	0.64	0.35	0.73	0.00
Avail Cap(c_a), veh/h	961	887	885				0	0	898	379	1769	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.00	0.84	0.69	0.69	0.00
Uniform Delay (d), s/veh	12.7	12.4	12.5				0.0	0.0	23.8	18.1	9.9	0.0
Incr Delay (d2), s/veh	1.1	1.0	1.0				0.0	0.0	0.9	0.6	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	6.3	5.4	5.4				0.0	0.0	9.7	2.1	4.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	13.4	13.5				0.0	0.0	24.7	18.6	10.6	0.0
LnGrp LOS	B	B	B				A	A	C	B	B	A
Approach Vol, veh/h		930						414			1017	
Approach Delay, s/veh		13.6						24.7			11.2	
Approach LOS		B						C			B	

Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				37.7		52.3		37.7				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 45		34.6		* 45				
Max Q Clear Time (g_c+I1), s				25.4		12.0		19.1				
Green Ext Time (p_c), s				7.1		6.2		2.7				

Intersection Summary			
HCM 6th Ctrl Delay			14.5
HCM 6th LOS			B

Notes

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	185	915	105	0	0	0	0	1091	206	83	149	0
Future Volume (veh/h)	185	915	105	0	0	0	0	1091	206	83	149	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	201	995	114				0	1186	224	90	162	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	497	1794	442				0	1817	811	172	1143	0
Arrive On Green	0.09	0.09	0.09				0.00	0.51	0.51	0.05	0.61	0.00
Sat Flow, veh/h	1781	6434	1585				0	3647	1585	3456	1870	0
Grp Volume(v), veh/h	201	995	114				0	1186	224	90	162	0
Grp Sat Flow(s),veh/h/ln	1781	1609	1585				0	1777	1585	1728	1870	0
Q Serve(g_s), s	9.6	13.3	6.0				0.0	22.0	7.2	2.3	3.3	0.0
Cycle Q Clear(g_c), s	9.6	13.3	6.0				0.0	22.0	7.2	2.3	3.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	497	1794	442				0	1817	811	172	1143	0
V/C Ratio(X)	0.40	0.55	0.26				0.00	0.65	0.28	0.52	0.14	0.00
Avail Cap(c_a), veh/h	497	1794	442				0	1817	811	219	1143	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98				0.00	0.65	0.65	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.8	35.5	32.2				0.0	16.1	12.5	41.7	7.5	0.0
Incr Delay (d2), s/veh	2.4	1.2	1.4				0.0	1.2	0.6	2.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	7.0	8.3	4.2				0.0	11.1	3.9	1.8	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	36.7	33.6				0.0	17.3	13.1	44.2	7.7	0.0
LnGrp LOS	D	D	C				A	B	B	D	A	A
Approach Vol, veh/h		1310						1410			252	
Approach Delay, s/veh		36.4						16.6			20.7	
Approach LOS		D						B			C	
Timer - Assigned Phs		2	3	4				8				
Phs Duration (G+Y+Rc), s		30.0	9.0	51.0				60.0				
Change Period (Y+Rc), s		4.9	4.5	5.0				5.0				
Max Green Setting (Gmax), s		25.1	5.7	44.8				55.0				
Max Q Clear Time (g_c+I1), s		15.3	4.3	24.0				5.3				
Green Ext Time (p_c), s		5.4	0.0	10.0				1.0				
Intersection Summary												
HCM 6th Ctrl Delay			25.7									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
7: Hill St & 4th St

05/04/2020

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	46	987	161	0	0	0	0	611	98	107	809	0
Future Volume (veh/h)	46	987	161	0	0	0	0	611	98	107	809	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	50	1073	175				0	664	107	116	879	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	0				0	2	2	2	2	0
Cap, veh/h	76	1728	292				0	1209	195	238	1402	0
Arrive On Green	0.13	0.13	0.13				0.00	0.39	0.39	0.79	0.79	0.00
Sat Flow, veh/h	192	4369	739				0	3159	493	698	3647	0
Grp Volume(v), veh/h	484	403	411				0	385	386	116	879	0
Grp Sat Flow(s),veh/h/ln	1861	1702	1737				0	1777	1782	698	1777	0
Q Serve(g_s), s	22.3	20.1	20.1				0.0	15.1	15.1	12.2	9.3	0.0
Cycle Q Clear(g_c), s	22.3	20.1	20.1				0.0	15.1	15.1	27.3	9.3	0.0
Prop In Lane	0.10		0.43				0.00		0.28	1.00		0.00
Lane Grp Cap(c), veh/h	736	673	687				0	701	703	238	1402	0
V/C Ratio(X)	0.66	0.60	0.60				0.00	0.55	0.55	0.49	0.63	0.00
Avail Cap(c_a), veh/h	736	673	687				0	865	867	303	1729	0
HCM Platoon Ratio	0.33	0.33	0.33				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	0.83	0.83	0.75	0.75	0.00
Uniform Delay (d), s/veh	33.3	32.4	32.4				0.0	21.1	21.1	14.8	6.7	0.0
Incr Delay (d2), s/veh	4.6	3.9	3.8				0.0	0.6	0.6	1.2	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(85%),veh/ln	15.5	13.1	13.3				0.0	8.5	8.5	2.5	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	36.3	36.2				0.0	21.6	21.6	16.0	7.1	0.0
LnGrp LOS	D	D	D				A	C	C	B	A	A
Approach Vol, veh/h		1298						771			995	
Approach Delay, s/veh		36.9						21.6			8.1	
Approach LOS		D						C			A	
Timer - Assigned Phs				4		6		8				
Phs Duration (G+Y+Rc), s				40.7		41.0		40.7				
Change Period (Y+Rc), s				* 5.2		5.4		* 5.2				
Max Green Setting (Gmax), s				* 44		35.6		* 44				
Max Q Clear Time (g_c+I1), s				29.3		24.3		17.1				
Green Ext Time (p_c), s				6.2		6.2		5.3				
Intersection Summary												
HCM 6th Ctrl Delay			23.7									
HCM 6th LOS			C									

Notes

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

Appendix J.2

Los Angeles Department of Transportation
Assessment Letter

FORM GEN. 160A (Rev. 1/82)

CITY OF LOS ANGELES

INTER-DEPARTMENTAL CORRESPONDENCE

361 S Hill St
DOT Case No. CEN18-46996

Date: August 5, 2020

To: Milena Zasadzien, Senior City Planner
Department of City Planning

From: Wes Pringle, Transportation Engineer
Department of Transportation

Subject: **TRANSPORTATION ASSESSMENT FOR THE PROPOSED ANGLES LANDING MIXED-USE DEVELOPMENT PROJECT AT 361 SOUTH HILL STREET**

The LADOT has reviewed the transportation analyses prepared by Gibson Transportation Consulting, Inc. dated May 29, 2020, for the proposed Angles Landing mixed-use development at 361 South Hill Street in the Central Area Planning Commission (APC) and within the Central City Community Plan and Bunker Hill Specific Plan. In compliance with SB 743 and the CEQA guidelines, a VMT analysis is required to identify the project's ability to promote the reduction of green-house gas emissions, the access to diverse land uses, and the development of multi-modal networks. The significance of a project's impact in this regard is measured against the VMT thresholds established in LADOT's July 2019 Transportation Assessment Guidelines (TAG), as described below.

DISCUSSION AND FINDINGS

A. <u>Project Description</u>

The Project proposes to construct a total of 432 multi-family high-rise units, including 252 apartment units and 180 condominium units, 515 hotel rooms within two buildings, and approximately 72,090 square feet (sf) of commercial space, which may ultimately include cultural/civic spaces. The parking would be provided on-site in a three-level subterranean parking garage, with driveways along Olive Street and 4th Street. Pedestrian access to the Project would be provided along Olive Street, 4th Street, and Hill Street. The Project Site is currently mostly landscaped and vacant, with the exception of the Los Angeles County Metropolitan Transportation Authority (Metro) B (formerly known as Red) and D (formerly known as Purple) Lines Pershing Square Station portal (Metro portal) located at the southeast corner of the Project Site and the publicly accessible stairway adjacent to the historic Angels Flight funicular railway on the northern boundary of the Project Site. Both the Metro portal and the stairway to Angels Flight will be maintained on-site, subject to enhancements implemented by the Project. The site plans are provided in **Attachment A &B**.

B. <u>Freeway Safety Analysis</u>

Per the Interim Guidance for Freeway Safety Analysis memorandum issued by LADOT on May 1, 2020 to address Caltrans safety concerns on freeways, the study addresses the project's effects on vehicle queuing on freeway off-ramps. Such an evaluation measures the project's potential to lengthen a forecasted off-ramp queue and create speed differentials between vehicles exiting the freeway off-ramps and vehicles operating on the freeway mainline.

Based on the Project's trip generation estimates, and traffic distribution pattern detailed later in this report, the Project would add 25 or more peak hour trips to the following three off-ramps during the morning and afternoon peak hours. These ramps are studied for potential queuing impacts which is provided in Attachment C. The queues at the three off-ramps would not extend onto the freeway mainline and the Project would not cause a significant safety impact. Thus, no mitigation is required.

110 Southbound Off-ramp to 4th Street
110 Northbound Off-ramp to 4th Street
110 Northbound Off-ramp to 6th Street

C. <u>CEQA Screening Threshold</u>

Prior to accounting for trip reductions resulting from the application of Transportation Demand Management (TDM) Strategies, a trip generation analysis was conducted to determine if the project would exceed 250 daily vehicle trips screening threshold. Using the City of Los Angeles VMT Calculator tool, which draws upon trip rate estimates published in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition as well as applying trip generation adjustments when applicable, based on sociodemographic data and the built environment factors of the project's surroundings, it was determined that the project **<u>does</u>** exceed the net 250 daily vehicle trips threshold.

Additionally, the analysis included further discussion of the transportation impact thresholds:

- T-1 Conflicting with plans, programs, ordinances, or policies
- T-2.1 Causing substantial vehicle miles traveled
- T-3 Substantially increasing hazards due to a geometric design feature or incompatible use.

The assessment determined that the project would **<u>not</u>** have a significant transportation impact under Thresholds T-1 and T-3. A copy of the VMT Calculator summary report is provided as **Attachment C**.

D. <u>Transportation Impacts</u>

On July 30, 2019, pursuant to SB 743 and the recent changes to Section 15064.3 of the State's CEQA Guidelines, the City of Los Angeles adopted VMT as criteria in determining transportation impacts under CEQA. The new LADOT TAG provide instructions on preparing transportation assessments for land use proposals and defines the significant impact thresholds.

The LADOT VMT Calculator tool measures project impact in terms of Household VMT per Capita, and Work VMT per Employee. LADOT identified distinct thresholds for significant VMT impacts for each of the seven Area Planning Commission (APC) areas in the City. For the Central APC area, in which the project is located, the following thresholds have been established:

- Household VMT per Capita: 6.0

- Work VMT per Employee: 7.6

The proposed project is projected to have a Household VMT per capita of 3.9 and Work VMT per employee of 7.3. Therefore, it is concluded that implementation of the project would result in **no significant VMT impact**. A copy of the VMT Calculator summary report is provided as **Attachment C**.

E. Access and Circulation

During the preparation of the new CEQA guidelines, the State's Office of Planning and Research stressed that lead agencies can continue to apply traditional operational analysis requirements to inform land use decisions provided that such analyses were outside of the CEQA process. The authority for requiring non-CEQA transportation analysis and requiring improvements to address potential circulation deficiencies, lies in the City of Los Angeles' Site Plan Review authority as established in Section 16.05 of the LAMC. Therefore, LADOT continues to require and review a project's site access, circulation, and operational plan to determine if any access enhancements, transit amenities, intersection improvements, traffic signal upgrades, neighborhood traffic calming, or other improvements are needed.

As illustrated in **Attachment A&B**, the project proposes to provide vehicular access via 2 driveways: 4th Street driveway would allow left-turn ingress and egress only and Olive Street driveway would accommodate both left and right-turn ingress and right-turn egress maneuvers (no left turns out of the driveway due to the proximity to the intersection of Olive Street & 4th Street).LADOT has reviewed this analysis and determined that it adequately discloses operational concerns.

The following intersections are studied using the "level of service (LOS)" screening methodology to evaluate the operational characteristics intersections based on the delay being experienced by vehicles passing through an intersection in the peak hour, calculated using a ratio of its traffic volume and its intersection capacity and based on intersection geometrics peak-hour volumes, turning movements and signal phasing.

1. Olive Street & 2nd Street
2. Olive Street & Kosciuszko Way
3. Hill Street & 3rd Street
4. Broadway & 3rd Street
5. Grand Avenue & 4th Street
6. Olive Street & 4th Street
7. Hill Street & 4th Street
8. Broadway & 4th Street
9. Olive Street & 5th Street
10. Hill Street & 5th Street

As shown in **Attachment D**, 6 of the 10 study intersections are anticipated to operate at LOS D or better during both the morning and afternoon peak hours under both Future without Project and Future with Project Conditions. The following four remaining intersections are anticipated to operate at **LOS E or F** during at least one of the analyzed peak hours:

3. Hill Street & 3rd Street (morning peak hour)

4. Intersection 4. Broadway & 3rd Street (morning and afternoon peak hours)
8. Intersection 8. Broadway & 4th Street (afternoon peak hour)
9. Olive Street & 5th Street (afternoon peak hour)

PROJECT REQUIREMENTS

A. Non-CEQA Related Requirements and Considerations

To comply with transportation and mobility goals and provisions of adopted City plans and ordinances, the applicant is proposing to implement the following:

1. Physical Improvements

LADOT's goal is to improve the efficiency of the study intersections, by optimally allocating green time to different modes and in different directions and provide the capability to remotely monitor and adjust signal timing in real-time to respond to specific traffic conditions or occurrences. The following Traffic Surveillance and Control system (ATSAC) improvements will maximize intersection throughput or manage queues and improve system performance:

- One 3" conduit, one 24SM fiber optic cable, one 25 pair interconnect on Hill Street between 3rd Street and 5th Street
- One 3" conduit, one 24SM fiber optic cable, one 25 pair interconnect on 3rd Street between Hill Street and Spring Street
- 2 new CCTV cameras at the intersections of 5th Street & Hill Street and 3rd Street & Hill Street.

The applicant should be responsible for the cost and implementation of any necessary bus stop relocations and lost parking meter revenues associated with the proposed transportation improvement as necessary.

Should the project be approved, then a final determination on how to implement the ATSAC improvements listed above will be made by DOT prior to the issuance of the first building permit. These improvements will be implemented **either** by the applicant through the B-Permit process of the Bureau of Engineering (BOE), **or** through payment of a one-time fixed fee of **$400,000** to DOT to fund the cost of the upgrades and improvements. If DOT selects the payment option, then the applicant would be required to pay **$400,000** to DOT, and DOT shall design and construct the upgrades and improvements. If the upgrades and improvements are implemented by the applicant through the B-Permit process, then these improvements must be guaranteed prior to the issuance of any building permit and completed prior to the issuance of any certificate of occupancy. Temporary certificates of occupancy may be granted in the event of any delay through no fault of the applicant, provided that, in each case, the applicant has demonstrated reasonable efforts and due diligence to the satisfaction of DOT.

All proposed street improvements within the City of Los Angeles must be guaranteed through BOE's B-Permit process, prior to the issuance of any building permit and completed prior to the issuance of any certificate of occupancy. Prior to setting the bond amount, BOE shall require that the developer's engineer or contractor contact LADOT's B-Permit Coordinator, ladot.planprocessing@lacity.org, to arrange a pre-design meeting to finalize the proposed design.

2. Parking Requirements
The project would provide 750 vehicle and 375 bicycle parking spaces. The applicant should check with the Departments of Building and Safety and City Planning on the number of Code-required parking spaces required for this project within the Central City Community Plan and Bunker Hill Specific Plan.

3. Highway Dedication and Street Widening Requirements
Per the new Mobility Element of the General Plan, **Olive Street, 4th Street and Hill Street** are designated as Modified Avenue II, would require a 28-foot half-width roadway within a 43-foot half-width right-of-way. The Project includes an approximate three-foot dedication along Olive Street to meet the Mobility Plan standards. The applicant should check with BOE's Land Development Group to determine if there are any other applicable highway dedication, street widening and/or sidewalk requirements for this project.

4. Project Access and Circulation
As illustrated in **Attachment A & B**, the project proposes to provide vehicular access via 2 driveways: 4th Street driveway would allow left-turn ingress and egress only and Olive Street driveway would accommodate both left and right-turn ingress and right-turn egress maneuvers (no left turns out of the driveway due to the proximity to the intersection of Olive Street & 4th Street). Project traffic traveling south on Olive Street will utilize the existing two-way left-turn lane to make a left turn into the driveway. Queued vehicles in this left-turn lane may influence traffic exiting the driveway on the west side of Olive Street (2-Cal Building) that desire to travel north and may require that these vehicles share the two-way left-turn lane. The project is proposing to install "KEEP CLEAR" to reduce conflicts within the two-way left-turn lane which is conceptually acceptable to LADOT.

All delivery truck and commercial loading and unloading shall take place on-site at the upper-porte-cochere which is accessible through Olive Street driveway. It provides on-site storage for TNC/Valet activity and allows for vehicle to stack within a circular loading area. If delivery trucks are expected during peak hours a dock manager shall be available on-site to facilitate efficient use of the loading dock. LADOT may recommend additional requirements once a complete review of the loading operations is conducted.

Any changes to the project's site access, circulation scheme, or loading/unloading area after issuance of this report would require separate review and approval and should be coordinated as soon as possible with LADOT's Citywide Planning Coordination Section (201 North Figueroa Street, 5th Floor, Room 550, at 213-482-7024). Driveway placement and design shall be approved by the Department of City Planning (City Planning) in consultation with LADOT, prior to issuance of a Letter of Determination by City Planning.

5. Worksite Traffic Control Requirements
LADOT recommends that a construction work site traffic control plan be submitted to LADOT's Citywide Temporary Traffic Control Section or Permit Plan Review Section for review and approval prior to the start of any construction work. Refer to http://ladot.lacity.org/businesses/temporary-traffic-control-plans to determine which

section to coordinate review of the work site traffic control plan. The plan should show the location of any roadway or sidewalk closures, traffic detours, haul routes, hours of operation, protective devices, warning signs and access to abutting properties. LADOT also recommends that all construction related truck traffic be restricted to off-peak hours to the extent feasible.

6. <u>TDM Ordinance Requirements</u>
The project is subject to the current TDM Ordinance (LAMC 12.26 J). This TDM Ordinance is currently being updated. The updated ordinance, which is currently progressing through the City's approval process, will:

- Expand the reach and application of TDM strategies to more land uses and neighborhoods,
- Rely on a broader range of strategies that can be updated to keep pace with technology, and
- Provide flexibility for developments and communities to choose strategies that work best for their neighborhood context.

Although not yet adopted, LADOT recommends that the applicant be subject to the terms of the proposed TDM Ordinance update, if it applies at the time the project secures its first building permit. The updated ordinance is expected to be completed in 2020 prior to the anticipated construction of this project, if approved.

7. <u>Development Review Fees</u>
Section 19.15 of the LAMC identifies specific fees for traffic study review, condition clearance, and permit issuance. The applicant shall comply with any applicable fees per this ordinance.

If you have any questions, please contact Russell Hasan of my staff at (213) 482-7024.

Attachments

J:\Letters\2020\CEN18-46996_361 S Hill St_Angels Landing Projec_DRAFT.docx

c: Shawn Kuk, Council District 14
Matthew Masuda, Central District, BOE
Edward Yu, Central District, LADOT
Taimour Tanavoli, Case Management, LADOT
Brian Hartshorn, Gibson Transportation Consulting, Inc.

Source: Handel Architects, LLP. May, 2020.

PROJECT SITE PLAN
LOWER PORTE COCHERE

FIGURE 1A

Source: Handel Architects, LLP. May, 2020.

PROJECT SITE PLAN
ANGELS TERRACE

FIGURE 1B

CITY OF LOS ANGELES VMT CALCULATOR Version 1.2

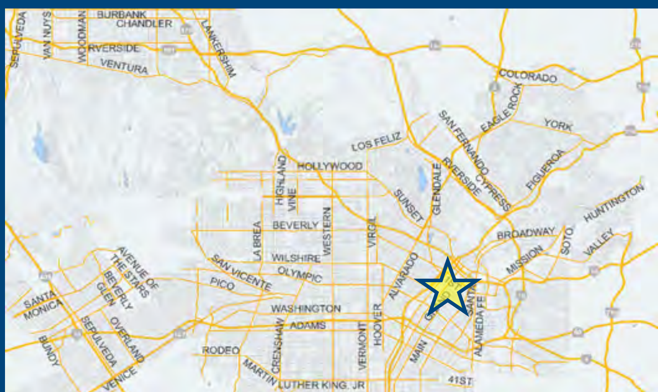
Project Screening Criteria: Is this project required to conduct a vehicle miles traveled analysis?

Project Information

Project: ANGELS LANDING (358 S Olive St)

Scenario:

Address: 34.051352, -118.250772



If the project is replacing an existing number of residential units with a smaller number of residential units, is the proposed project located within one-half mile of a fixed-rail or fixed-guideway transit station?

○ Yes ○ No

Existing Land Use

Land Use Type	Value	Unit
Housing | Single Family		DU

☐ Click here to add a single custom land use type (will be included in the above list)

Proposed Project Land Use

Land Use Type	Value	Unit
Retail | Quality Restaurant	21.627	ksf
Housing | Multi-Family	432	DU
Housing | Hotel	515	Rooms
Retail | General Retail	28.836	ksf
Retail | High-Turnover Sit-Down Restaurant	21.627	ksf
Retail | Quality Restaurant	21.627	ksf

☐ Click here to add a single custom land use type (will be included in the above list)

Project Screening Summary

Existing Land Use	Proposed Project
0 Daily Vehicle Trips	**5,410** Daily Vehicle Trips
0 Daily VMT	**40,033** Daily VMT

Tier 1 Screening Criteria

Project will have less residential units compared to existing residential units & is within one-half mile of a fixed-rail station. ☐

Tier 2 Screening Criteria

The net increase in daily trips < 250 trips	5,410 Net Daily Trips
The net increase in daily VMT ≤ 0	40,033 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	72.090 ksf

The proposed project is required to perform VMT analysis.

Measuring the Miles

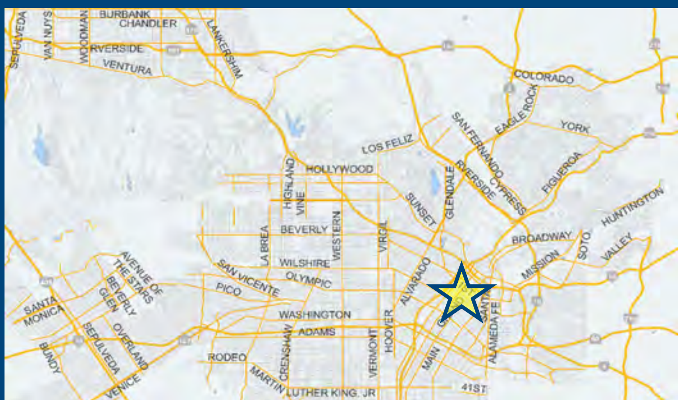
CITY OF LOS ANGELES VMT CALCULATOR Version 1.2

Project Information

Project: ANGELS LANDING (358 S Olive St)

Scenario:

Address: 34.051352, -118.250772



Proposed Project Land Use Type	Value	Unit
Housing | Multi-Family	432	DU
Housing | Hotel	515	Rooms
Retail | General Retail	28.836	ksf
Retail | High-Turnover Sit-Down Restaurant	21.627	ksf
Retail | Quality Restaurant	21.627	ksf

TDM Strategies

Select each section to show individual strategies

Use ☑ to denote if the TDM strategy is part of the proposed project or is a mitigation strategy

	Proposed Project	With Mitigation
Max Home Based TDM Achieved?	**No**	**No**
Max Work Based TDM Achieved?	**No**	**No**

A Parking

Reduce Parking Supply
- 100 city code parking provision for the project site
- 74 actual parking provision for the project site
- ☐ Proposed Prj ☐ Mitigation

Unbundle Parking
- 150 monthly parking cost (dollar) for the project site
- ☐ Proposed Prj ☐ Mitigation

Parking Cash-Out
- 50 percent of employees eligible
- ☐ Proposed Prj ☐ Mitigation

Price Workplace Parking
- 6.00 daily parking charge (dollar)
- 25 percent of employees subject to priced parking
- ☐ Proposed Prj ☐ Mitigation

Residential Area Parking Permits
- 200 cost (dollar) of annual permit
- ☐ Proposed Prj ☐ Mitigation

B Transit

C Education & Encouragement

D Commute Trip Reductions

E Shared Mobility

F Bicycle Infrastructure

G Neighborhood Enhancement

Analysis Results

Proposed Project	With Mitigation
5,410 Daily Vehicle Trips	**5,410** Daily Vehicle Trips
40,033 Daily VMT	**40,033** Daily VMT
3.9 Household VMT per Capita	**3.9** Household VMT per Capita
7.3 Work VMT per Employee	**7.3** Work VMT per Employee

Significant VMT Impact?

Proposed Project	With Mitigation
Household: No Threshold = 6.0 15% Below APC	**Household: No** Threshold = 6.0 15% Below APC
Work: No Threshold = 7.6 15% Below APC	**Work: No** Threshold = 7.6 15% Below APC

Measuring the Miles

12/5/2019

Project Information

Land Use Type		Value	Units
Housing	*Single Family*	*0*	*DU*
	Multi Family	432	DU
	Townhouse	*0*	*DU*
	Hotel	515	Rooms
	Motel	*0*	*Rooms*
Affordable Housing	*Family*	*0*	*DU*
	Senior	*0*	*DU*
	Special Needs	*0*	*DU*
	Permanent Supportive	*0*	*DU*
Retail	General Retail	28.836	ksf
	Furniture Store	*0.000*	*ksf*
	Pharmacy/Drugstore	*0.000*	*ksf*
	Supermarket	*0.000*	*ksf*
	Bank	*0.000*	*ksf*
	Health Club	*0.000*	*ksf*
	High-Turnover Sit-Down Restaurant	21.627	ksf
	Fast-Food Restaurant	*0.000*	*ksf*
	Quality Restaurant	21.627	ksf
	Auto Repair	*0.000*	*ksf*
	Home Improvement	*0.000*	*ksf*
	Free-Standing Discount	*0.000*	*ksf*
	Movie Theater	*0*	*Seats*
Office	*General Office*	*0.000*	*ksf*
	Medical Office	*0.000*	*ksf*
Industrial	*Light Industrial*	*0.000*	*ksf*
	Manufacturing	*0.000*	*ksf*
	Warehousing/Self-Storage	*0.000*	*ksf*
School	*University*	*0*	*Students*
	High School	*0*	*Students*
	Middle School	*0*	*Students*
	Elementary	*0*	*Students*
	Private School (K-12)	*0*	*Students*
Other		*0*	*Trips*

Analysis Results

Total Employees: 488
Total Population: 973

Proposed Project		*With Mitigation*	
5,410	**Daily Vehicle Trips**	**5,410**	**Daily Vehicle Trips**
40,033	**Daily VMT**	**40,033**	**Daily VMT**
3.9	**Household VMT per Capita**	**3.9**	**Household VMT per Capita**
7.3	**Work VMT per Employee**	**7.3**	**Work VMT per Employee**

Significant VMT Impact?

APC: Central

Impact Threshold: 15% Below APC Average
Household = 6.0
Work = 7.6

Proposed Project		*With Mitigation*	
VMT Threshold	**Impact**	**VMT Threshold**	**Impact**
Household > 6.0	No	Household > 6.0	No
Work > 7.6	No	Work > 7.6	No

TDM Strategy Inputs

Strategy Type		Description	Proposed Project	Mitigations
Parking	*Reduce parking supply*	*City code parking provision (spaces)*	*0*	*0*
		Actual parking provision (spaces)	*0*	*0*
	Unbundle parking	*Monthly cost for parking ($)*	*$0*	*$0*
	Parking cash-out	*Employees eligible (%)*	*0%*	*0%*
	Price workplace parking	*Daily parking charge ($)*	*$0.00*	*$0.00*
		Employees subject to priced parking (%)	*0%*	*0%*
	Residential area parking permits	*Cost of annual permit ($)*	*$0*	*$0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Transit	Reduce transit headways	Reduction in headways (increase in frequency) (%)	0%	0%
		Existing transit mode share (as a percent of total daily trips) (%)	0%	0%
		Lines within project site improved (<50%, >=50%)	0	0
	Implement neighborhood shuttle	Degree of implementation (low, medium, high)	0	0
		Employees and residents eligible (%)	0%	0%
	Transit subsidies	Employees and residents eligible (%)	0%	0%
		Amount of transit subsidy per passenger (daily equivalent) ($)	$0.00	$0.00
Education & Encouragement	Voluntary travel behavior change program	Employees and residents participating (%)	0%	0%
	Promotions and marketing	Employees and residents participating (%)	0%	0%

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Commute Trip Reductions	*Required commute trip reduction program*	*Employees participating (%)*	*0%*	*0%*
	Alternative Work Schedules and Telecommute	*Employees participating (%)*	*0%*	*0%*
		Type of program	*0*	*0*
	Employer sponsored vanpool or shuttle	*Degree of implementation (low, medium, high)*	*0*	*0*
		Employees eligible (%)	*0%*	*0%*
		Employer size (small, medium, large)	*0*	*0*
	Ride-share program	*Employees eligible (%)*	*0%*	*0%*
Shared Mobility	*Car share*	*Car share project setting (Urban, Suburban, All Other)*	*0*	*0*
	Bike share	*Within 600 feet of existing bike share station - OR- implementing new bike share station (Yes/No)*	*0*	*0*
	School carpool program	*Level of implementation (Low, Medium, High)*	*0*	*0*

(cont. on following page)

TDM Strategy Inputs, Cont.

Strategy Type		Description	Proposed Project	Mitigations
Bicycle Infrastructure	*Implement/Improve on-street bicycle facility*	*Provide bicycle facility along site (Yes/No)*	*0*	*0*
	Include Bike parking per LAMC	*Meets City Bike Parking Code (Yes/No)*	*0*	*0*
	Include secure bike parking and showers	*Includes indoor bike parking/lockers, showers, & repair station (Yes/No)*	*0*	*0*
Neighborhood Enhancement	*Traffic calming improvements*	*Streets with traffic calming improvements (%)*	*0%*	*0%*
		Intersections with traffic calming improvements (%)	*0%*	*0%*
	Pedestrian network improvements	*Included (within project and connecting off-site/within project only)*	*0*	*0*

CITY OF LOS ANGELES VMT CALCULATOR

Report 3: TDM Outputs

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

TDM Adjustments by Trip Purpose & Strategy

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Parking	Reduce parking supply	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Parking sections 1 - 5
	Unbundle parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Parking cash-out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Price workplace parking	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Residential area parking permits	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Transit	Reduce transit headways	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Transit sections 1 - 3
	Implement neighborhood shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Transit subsidies	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Education & Encouragement	Voluntary travel behavior change program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Education & Encouragement sections 1 - 2
	Promotions and marketing	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Commute Trip Reductions	Required commute trip reduction program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	TDM Strategy Appendix, Commute Trip Reductions sections 1 - 4
	Alternative Work Schedules and Telecommute Program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Employer sponsored vanpool or shuttle	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Ride-share program	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
Shared Mobility	Car-share	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Shared Mobility sections 1 - 3
	Bike share	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
	School carpool program	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

TDM Adjustments by Trip Purpose & Strategy, Cont.

Place type: Urban

		Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*		*Source*
		Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	
Bicycle Infrastructure	Implement/ Improve on-street bicycle facility	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Bicycle Infrastructure sections 1 - 3
	Include Bike parking per LAMC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
	Include secure bike parking and showers	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
Neighborhood Enhancement	Traffic calming improvements	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	TDM Strategy Appendix, Neighborhood Enhancement sections 1 - 2
	Pedestrian network improvements	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Final Combined & Maximum TDM Effect

	Home Based Work Production		*Home Based Work Attraction*		*Home Based Other Production*		*Home Based Other Attraction*		*Non-Home Based Other Production*		*Non-Home Based Other Attraction*	
	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated	Proposed	Mitigated
COMBINED TOTAL	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
MAX. TDM EFFECT	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

= Minimum (X%, 1-[(1-A)*(1-B)...])

where X%=

PLACE TYPE MAX:	urban	75%
	compact infill	*40%*
	suburban center	*20%*
	suburban	*15%*

Note: (1-[(1-A)*(1-B)...]) reflects the dampened combined effectiveness of TDM Strategies (e.g., A, B,...). See the TDM Strategy Appendix (*Transportation Assessment Guidelines Attachment G)* for further discussion of dampening.

CITY OF LOS ANGELES VMT CALCULATOR

Report 4: MXD Methodology

Date: December 5, 2019
Project Name: ANGELS LANDING (358 S Olive St)
Project Scenario:
Project Address: 34.051352, -118.250772

Version 1.2

MXD Methodology - Project Without TDM

	Unadjusted Trips	MXD Adjustment	MXD Trips	Average Trip Length	Unadjusted VMT	MXD VMT
Home Based Work Production	585	-40.7%	347	5.1	2,984	1,770
Home Based Other Production	1,567	-68.9%	487	4.1	6,425	1,997
Non-Home Based Other Production	1,475	-26.0%	1,091	9.0	13,275	9,819
Home-Based Work Attraction	708	-40.3%	423	8.4	5,947	3,553
Home-Based Other Attraction	5,856	-68.4%	1,851	7.2	42,163	13,327
Non-Home Based Other Attraction	1,632	-25.8%	1,211	7.9	12,893	9,567

MXD Methodology with TDM Measures

	Proposed Project			*Project with Mitigation Measures*		
	TDM Adjustment	Project Trips	Project VMT	TDM Adjustment	Mitigated Trips	Mitigated VMT
Home Based Work Production	0.0%	347	1,770	0.0%	347	1,770
Home Based Other Production	0.0%	487	1,997	0.0%	487	1,997
Non-Home Based Other Production	0.0%	1,091	9,819	0.0%	1,091	9,819
Home-Based Work Attraction	0.0%	423	3,553	0.0%	423	3,553
Home-Based Other Attraction	0.0%	1,851	13,327	0.0%	1,851	13,327
Non-Home Based Other Attraction	0.0%	1,211	9,567	0.0%	1,211	9,567

MXD VMT Methodology Per Capita & Per Employee

Total Population: 973
Total Employees: 488
APC: Central

	Proposed Project	*Project with Mitigation Measures*
Total Home Based Production VMT	**3,767**	**3,767**
Total Home Based Work Attraction VMT	**3,553**	**3,553**
Total Home Based VMT Per Capita	**3.9**	**3.9**
Total Work Based VMT Per Employee	**7.3**	**7.3**

Attachment D

TABLE 9
FUTURE WITH PROJECT CONDITIONS (YEAR 2028)
INTERSECTION LEVELS OF SERVICE ANALYSIS

No	Intersection	Peak Hour	Future without Project		Future with Project	
			Delay	LOS	Delay	LOS
1.	Olive Street & 2nd Street	AM PM	15.1 7.2	B A	16.0 9.2	B A
2.	Olive Street & Kosciuszko Way	AM PM	4.5 11.1	A B	4.6 11.5	A B
3.	Hill Street & 3rd Street	AM PM	51.3 40.9	D D	76.9 43.9	E D
4.	Broadway & 3rd Street	AM PM	60.7 76.4	E E	62.2 114.7	E F
5.	Grand Avenue & 4th Street	AM PM	4.3 6.1	A A	4.4 5.9	A A
6.	Olive Street & 4th Street	AM PM	20.4 34.0	C C	21.0 39.7	C D
7.	Hill Street & 4th Street	AM PM	24.1 33.6	C C	27.3 43.9	C D
8.	Broadway & 4th Street	AM PM	24.7 67.8	C E	24.3 73.8	C E
9.	Olive Street & 5th Street	AM PM	30.2 79.1	C E	30.2 92.2	C F
10.	Hill Street & 5th Street	AM PM	23.3 23.3	C C	23.7 23.9	C C

Notes:
Delay is measured in seconds per vehicle
LOS = Level of service
Results per Synchro 10 (HCM methodology)