

Appendix FEIR-F
**Modified Project
Transportation Analysis**



DRAFT

MEMORANDUM

TO: Eileen Hunt, Los Angeles Department of Transportation

FROM: Sarah M. Drobis, P.E., and Emily Wong, P.E.

DATE: June 5, 2024

RE: Transportation Assessment for the
Modified Fourth & Central Project
Los Angeles, California

Ref: J1765

This memorandum presents an assessment for the Fourth & Central Project (Project) located generally at 400 S. Central Avenue (Project Site) in the *Central City Community Plan* (Los Angeles Department of City Planning [LADCP], Updated September 2016) area of the City of Los Angeles, California (City).

The Los Angeles Department of Transportation (LADOT) issued *Inter-Departmental Correspondence: Transportation Assessment for the Proposed Mixed-Use Project Located at 400 South Central Avenue* (September 8, 2022) (LADOT Assessment Letter) in response to *Transportation Assessment for the Fourth & Central Project* (Gibson Transportation Consulting, Inc., July 2022) (Approved TAR), which evaluated the transportation impacts and constraints of the Project contained in *Fourth & Central Project Draft Environmental Impact Report* (Environmental Science Associates, October 2022) (Draft EIR). Since the publication of the Draft EIR, the Project design has been modified to address public and agency comments (Modified Project).

PROJECT LOCATION

The Project Site consists of six parcels clustered around three blocks:

- APN 5147-001-007 (North Site)
- APN 5147-013-016 (South Site)
- APNs 5147-012-015, 5147-011-015, -016, -017 (West Site)

The North Site is generally bounded by commercial uses to the north, a surface parking lot and commercial uses to the east, 4th Street to the south, and Central Avenue to the west. The South Site is generally bounded by 4th Street to the north, Alameda Street to the east, industrial uses to the south, and Central Avenue to the west. The West Site is generally bounded by commercial uses to the north and west, Central Avenue to the east, and 5th Street and commercial uses to the south. The Project Site is currently occupied by 360,734 square feet (sf) of cold storage warehouse uses on the North and South Sites and an existing surface parking lot on the West Site.

APPROVED TAR

The Project evaluated in the Approved TAR would remove all existing uses currently on-site and construct a mixed-use development within 10 distinct buildings that would include 1,521 residential units, 68 hotel rooms, 411,113 sf of office, and 114,112 of commercial retail and restaurant uses¹. The Project also includes amenities for the residents, guests, and employees to the Project, such as communal open space. The Project is anticipated to be completed in Year 2030.

A total of 2,475 parking spaces, including electric vehicle parking, would be provided on-site within at-grade and subterranean parking levels at the three sites. The Project would also provide 740 bicycle parking spaces, including both short-term and long-term spaces, throughout the Project Site.

Primary vehicular access would be provided via driveways along 4th Street, Central Avenue, Gladys Avenue, and Alameda Street to the three sites and is described as follows:

- South Site: Two driveways would be provided along the east side of Central Avenue and one driveway would be provided along Alameda Street. A designated passenger drop-off area would be provided on-site along Alameda Street, located just south of 4th Street. The driveway on Alameda Street and the northernmost driveway on Central Avenue would be connected by an internal east-west drive aisle and would accommodate right-turn and left-turn ingress and egress movements. The southernmost driveway on Central Avenue would align with the existing traffic signal at 5th Street and would accommodate all ingress and egress movements. Passenger loading and unloading areas would also be provided on-site and may also be provided along Alameda Street subject to City approval.
- North Site: One driveway would be provided along Central Avenue and one along 4th Street, with an internal drive aisle connecting them to provide access to the parking podium and subterranean levels. The Central Avenue driveway would accommodate both left-turn and right-turn ingress and egress movements. The 4th Street driveway would accommodate left-turn ingress and egress movements only due to the one-way orientation of 4th Street. Additional delivery and truck loading access would be provided from the internal drive aisle, with ingress from the Central Avenue driveway and egress from the 4th Street driveway.
- West Site: One driveway would be provided along Central Avenue and one driveway would be provided along Gladys Avenue to access to residential uses. The Central Avenue driveway would accommodate both right-turn and left-turn ingress and egress movements, while the Gladys Avenue driveway would accommodate right-turn ingress and egress movements only.

¹ The Project included 101,088 sf restaurant/retail floor area for purposes of calculating floor area per Los Angeles Municipal Code (LAMC) requirements. An additional potential 13,024 sf of outdoor dining/patio space may be incorporated into the Project, which does not count towards the LAMC calculation of floor area. To provide a conservative analysis of potential transportation impacts associated with the Project's retail/restaurant uses, the analyses included herein evaluates a total of 114,112 sf of restaurant/retail uses. It is assumed there would be 45,266 sf of retail uses and 68,846 sf of restaurant uses.

The Project's potential California Environmental Quality Act (CEQA) transportation impacts were evaluated in the Approved TAR in accordance with the adopted methodology and guidelines in effect at the time of the initial approval, *Transportation Assessment Guidelines* (LADOT, July 2020) (TAG).

As detailed in the Approved TAR and per the findings of the LADOT Assessment Letter, the Project would not result in any CEQA impacts under any of the following thresholds² identified in the TAG:

- Threshold T-1: Conflicting with Plans, Programs, Ordinances, or Policies
- Threshold T-2.1: Causing Substantial Vehicle Miles Traveled (VMT)
- Threshold T-3: Substantially Increasing Hazards Due to a Geometric Design Feature or Incompatible Use

Therefore, no mitigation measures were required for the Project. Nevertheless, the Project would implement a transportation demand management (TDM) program to reduce single occupancy vehicle trips to and from the Project Site during commuter peak hours. In addition, the Project would also contribute toward the installation of a pedestrian mid-block crossing signal on 4th Street between Alameda Street and Merrick Street to improve pedestrian access in the Project area.

MODIFIED PROJECT

As previously detailed, in response to public and agency comments received on the Draft EIR, design modifications have been made to the Project. The Modified Project modifications include the removal of the 68-room hotel component, the increase in residential units from 1,521 units to 1,589 units, and the increase in commercial retail and restaurant space from 101,088 sf to 145,748 sf³. The office component would remain unchanged at 411,113 sf.

Under the Modified Project, a total of 2,444 parking spaces would be provided, a reduction from 2,475 spaces proposed in the Draft EIR. The site access and circulation plan would remain consistent with the Project evaluated in the Approved TAR.

Trip Generation

Consistent with the Approved TAR, the trip generation estimates for the Modified Project were calculated using LADOT empirical trip rates from TAG Table 3.3-1 for the residential component and *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, 2017) for the commercial component, including office, retail and restaurant uses. Trip reductions to commercial

² A fourth threshold, Threshold T-2.2: Substantially Inducing Additional Automobile Travel, is intended for transportation projects that increase vehicular capacity on roadways. Threshold T-2.2 does not apply to the Project.

³ The 145,748 sf restaurant/retail floor area includes floor area for purposes of calculating floor area per LAMC requirements. An additional potential 12,477 sf of outdoor dining/patio space may be incorporated into the Project, which does not count toward the LAMC calculation of floor area. To provide a conservative analysis, the Modified Project analyses evaluated a total of 158,225 sf of restaurant/retail uses and assumed there would be 67,595 sf of retail uses and 90,630 sf of restaurant uses (indoor and outdoor uses combined).

uses were applied to account for public transit usage/walking arrivals, internal capture, and pass-by trips, consistent with the Approved TAR.

As detailed in Table 1, the Modified Project would generate 1,053 net new morning peak hour trips (592 inbound, 497 outbound) and 1,357 net new afternoon peak hour trips (642 inbound, 715 outbound).

The resulting traffic volumes under Existing with Modified Project Conditions and Future with Modified Project Conditions are provided in Attachment A.

CEQA ANALYSIS OF TRANSPORTATION IMPACTS

The Modified Project was evaluated for potential significant CEQA impacts consistent with the methodologies presented in the Approved TAR.

Threshold T-1: Conflicting with Plans, Programs, Ordinances, Or Policies Analysis

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

Consistent with the Project evaluated in the Approved TAR, the Modified Project would be designed to conform with the applicable programs, plans, ordinances, or policies identified in Table 2-1.1 of the TAG related to the circulation system, including transit, roadways, bicycles, and pedestrian facilities. Furthermore, the Modified Project would not preclude the City from implementing future improvements to serve the long-term mobility needs of the City. Therefore, the Modified Project would not result in a significant impact under Threshold T-1.

Cumulative Analysis. The Modified Project, together with the Related Projects identified in the Approved TAR within 0.5 miles of the Project Site, would not result in a cumulative impact that would preclude the City from serving the transportation needs as defined by the City's adopted programs, plans, ordinances, or policies. The Modified Project and the Related Projects do not interfere with any of the general policy recommendations and/or pilot proposals and, therefore, there would be no significant Modified Project impact or cumulative impact.

Threshold T-2.1: Causing Substantial VMT Analysis

The VMT analysis presented below reflects estimates of project-specific daily household VMT per capita and daily work VMT per employee for developments within City limits based on *City of Los Angeles VMT Calculator Version 1.3* (LADOT, July 2020) (VMT Calculator), consistent with the Approved TAR.

The TAG identifies significant impact criteria of 6.0 household VMT per capita and 7.6 work VMT per employee for the Central Area Planning Commission (APC).

Modified Project VMT. The VMT Calculator was modeled with the Modified Project's land use and density as the primary inputs.

The Modified Project would include a total of approximately 158,225 sf of restaurant/retail uses. It is assumed there would be 67,595 sf of retail uses and 90,630 sf of indoor and outdoor restaurant uses. Consistent with the Project evaluated in the Approved TAR, the Modified 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. Furthermore, the Modified Project is not a retail project, is not considered regional-serving, and would serve the local community. Thus, the Modified Project was not modeled as a regional-serving retail project.

The Modified Project would continue to include several design features to reduce the number of single occupancy vehicle trips to the Project Site. For the purposes of the VMT analysis, and consistent with the Approved TAR, reduced parking supply, parking cash-out program, bike share station, and bicycle parking per LAMC were accounted for in the VMT evaluation.

As shown in Table 2, the VMT Calculator estimates that the Modified Project would generate 13,708 total household VMT and 13,687 total work VMT. Thus, based on the population and employment assumptions, the Modified Project would generate an average household VMT per capita of 3.8 and average work VMT per employee of 6.4, falling below the significance threshold for the Central APC (6.0 household VMT per capita and 7.6 work VMT per employee). Therefore, consistent with the conclusions of the Approved TAR and Draft EIR, the Modified Project would not result in a significant VMT impact, and no mitigation measures would be required. The detailed output from the VMT Calculator is provided in Attachment B.

Cumulative Analysis. As detailed in the TAG, for projects that do not demonstrate a project impact by applying an efficiency-based impact threshold (i.e., household VMT per capita, work VMT per employee) in the project impact analysis, a less than significant impact conclusion is sufficient in demonstrating there is no cumulative VMT impact, as those projects are already shown to align with the long-term VMT and greenhouse gas goals of *Connect SoCal – The 2020-2045 Regional Transportation Plan / Sustainable Communities Strategy* (Southern California Association of Governments, Adopted September 2020) (RTP/SCS). The Modified Project would not result in a significant VMT impact, as detailed above. Therefore, consistent with the Approved Project, the Modified Project would result in a less than significant cumulative VMT impact under Threshold 2.1-1. Furthermore, the Modified Project would also be designed to further reduce single occupancy trips to the Project Site through design features that encourage a variety of transportation options. The Modified Project would also contribute to the productivity and use of the regional transportation system by providing employment near transit, consistent with the RTP/SCS goal of maximizing mobility and accessibility in the region.

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

Impacts regarding the potential increase in 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.

A review of access points, internal circulation, and parking access was conducted to determine if the Modified Project would substantially increase hazards due to geometric design features, including safety, operational, or capacity impacts. As previously detailed, the site access and circulation plan under the Modified Project would remain consistent with the Approved TAR.

Vehicles. As previously detailed, vehicular access to the Project Site under the Modified Project would continue to be provided via driveways along 4th Street, Central Avenue, Gladys Avenue, and Alameda Street. As detailed in the Approved TAR, the driveways would be designed in accordance with City standards. The driveways would be located perpendicular to the adjacent roadways, and there would be no slopes, curves, landscaping, or other barriers that would impede visibility. In addition, the driveways would be placed to provide appropriate pedestrian refuge areas between the driveways. Adequate queuing areas would also be provided at the driveways internal to the Project Site to limit any potential spillover into the public streets. Additionally, the parking levels within the individual sites would be connected internally to minimize vehicle circulation within the public right-of-way (ROW). In addition, the Project would utilize and improve existing driveways along 4th Street, Alameda Street, and Central Avenue and would reduce existing driveway widths. Therefore, the vehicular access and internal circulation plan for the Project would be designed to minimize vehicular conflicts, and safety impacts to the abutting street system are not anticipated.

Pedestrians & Bicycles. Consistent with Approved TAR, pedestrian and bicycle access to the Project Site under the Modified Project would continue to be provided via building entryways along 4th Street, Central Avenue, Gladys Avenue, and Alameda Street that would be separate from the vehicular access points. Adjacent to the Project Site, 4th Street, Central Avenue, and Alameda Street are identified as part of the High Injury Network. The Modified Project would continue to provide the required dedications along 4th Street, which would include the proposed realignment of the centerline to provide equal half-ROW widths on the north and south sides of the street, and Alameda Street to meet the standards identified in *Mobility Plan 2035, An Element of the General Plan* (LADCP, September 2016) (Mobility Plan). Furthermore, the Modified Project would also provide publicly accessible pedestrian facilities throughout the Project Site to provide an enhanced pedestrian environment. Currently, there are no bicycle facilities adjacent to the Project Site. None of the Modified Project driveways would cross any existing bicycle lanes or routes. Central Avenue and Alameda Street adjacent to the Project Site is designated as part of the Bicycle Enhanced Network in the Mobility Plan; however, there is currently no schedule for implementation of bicycle improvements and the Modified Project would not preclude the City from future implementation of bicycle infrastructure. The Modified Project driveways provide adequate sight distance to limit potential vehicular-bicycle conflicts. Therefore, the Modified Project driveways would not pose any safety hazards to any existing or future pedestrian and bicycle facilities.

Cumulative Analysis. The TAG indicates that cumulative impacts for Threshold T-3 require a review of Related Projects with access points proposed along the same block(s) as a proposed project in order to determine the combined impact and the proposed project's contribution. None of the Related Projects identified in the Approved TAR provides access along the same block as

the Project. Thus, the Project and Related Projects would not result in a cumulative impact under Threshold T-3.

Freeway Safety Analysis

The TAG guidance on identifying requirements for a CEQA safety analysis of California Department of Transportation facilities as part of a transportation assessment.

Methodology. Section 4.4.4 of the TAG relates to the identification of potential safety impacts at freeway off-ramps as a result of increased traffic from development projects. It provides 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.

As detailed in Section 4.4.4 of the TAG, a transportation assessment for a development project must include analysis of any freeway off-ramp where the project adds 25 or more 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 lanes⁴.
2. A 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 miles per hour.

Should a significant impact be identified, mitigation measures to be considered include TDM strategies to reduce a project's trip generation, investments in active transportation or transit system infrastructure to reduce a 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 improve safety, not induce greater VMT, and not result in secondary environmental impacts.

Analysis. Based on the Modified Project's trip generation estimates detailed in Table 1, the Project would add 25 or more peak hour trips to the following off-ramps during the morning and afternoon peak hours:

- US 101 Northbound Off-Ramp to 4th Street
- US 101 Southbound Off-ramp to Los Angeles Street
- I-5 Northbound Off-Ramp to 7th Street
- I-5 Southbound Off-Ramp to 4th Street
- I-10 Eastbound Off-ramp to Central Avenue
- I-10 Eastbound Off-ramp to Alameda Street

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.

In accordance with the applicable methodology, the 95th percentile ramp queue was calculated using the *Highway Capacity Manual, 6th Edition* (Transportation Research Board, 2016) methodology. Conditions were analyzed for the anticipated Project buildout year of 2030, which includes growth and traffic from Related Projects, both with and without Project traffic. The summary of queue lengths and off-ramp storage length, along with the analysis worksheets, are provided in Attachment C.

As shown in Attachment C, under Future with Project Conditions, the queues at off-ramps 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 off-ramps would not extend onto the freeway mainline and the Project would not cause a significant safety constraint. Thus, no corrective measures are required.

CONCLUSION

Consistent with the Approved TAR, the Modified Project would not conflict with the City's plans, programs, ordinances, and policies and would not generate significant VMT or geometric design hazard impacts. Thus, the conclusions of the Modified Project analyses are consistent with the Approved TAR and Draft EIR, and the Modified Project would not result in any new or worsening transportation impacts.

TABLE 1
PROJECT TRIP GENERATION ESTIMATES
MODIFIED PROJECT

Land Use	ITE Land Use Code	Size	Morning Peak Hour			Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
TRIP GENERATION RATES [a]								
Warehousing	150	per ksf	77%	23%	0.17	27%	73%	0.19
High-Cube Cold Storage Warehouse	157	per ksf	[b]	[b]	0.11	[b]	[b]	0.12
Multifamily Housing (Mid-Rise)	[c]	per du	26%	74%	0.31	61%	39%	0.30
Multifamily Housing (High-Rise)	[c]	per du	24%	76%	0.23	61%	39%	0.30
Hotel	310	per room	59%	41%	0.47	51%	59%	0.60
General Office Building	710	per ksf	86%	14%	1.16	16%	84%	1.15
Shopping Center [d]	820	per ksf	62%	38%	0.94	48%	52%	3.81
Quality Restaurant [e]	931	per ksf	55%	45%	0.73	67%	33%	7.80
High-Turnover Restaurant	932	per ksf	55%	45%	9.94	62%	38%	9.77
TRIP GENERATION ESTIMATES								
Modified Project								
Residential (Mid-Rise)	221	267 du	22	61	83	49	31	80
Residential (High-Rise)	222	1,322 du	73	231	304	242	155	397
Office	710	411,113 sf	410	67	477	76	397	473
Less 10% Transit/Walk-In	[f]		(41)	(7)	(48)	(8)	(40)	(48)
Commercial - Retail	820	67,595 sf	40	24	64	124	134	258
Less 10% Internal Capture	[g]		(4)	(2)	(6)	(12)	(13)	(25)
Less 10% Transit/Walk-In	[f]		(4)	(2)	(6)	(11)	(12)	(23)
Less 40% Pass-by	[h]		(13)	(8)	(21)	(40)	(44)	(84)
Commercial - Quality Restaurant	931	45,315 sf	18	15	33	219	134	353
Less 10% Internal Capture	[g]		(2)	(2)	(4)	(22)	(13)	(35)
Less 10% Transit/Walk-In	[f]		(2)	(1)	(3)	(20)	(12)	(32)
Less 10% Pass-by	[h]		(1)	(1)	(2)	(18)	(11)	(29)
Commercial - High-Turnover Restaurant	932	45,315 sf	248	202	450	275	168	443
Less 10% Internal Capture	[g]		(25)	(20)	(45)	(28)	(17)	(45)
Less 10% Transit/Walk-In	[f]		(22)	(18)	(40)	(25)	(15)	(40)
Less 20% Pass-by	[h]		(40)	(33)	(73)	(44)	(27)	(71)
TOTAL MODIFIED PROJECT TRIPS			657	506	1,163	757	815	1,572
Existing Uses to be Removed								
Cold Storage Warehouse	157	360,734 sf	31	9	40	12	31	43
TOTAL NET NEW MODIFIED PROJECT TRIPS			626	497	1,123	745	784	1,529
TOTAL NET NEW DRAFT EIR / ENTITLEMENT PROJECT TRIPS [i]			592	461	1,053	642	715	1,357
DIFFERENCE			34	36	70	103	69	172

Notes

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

[b] No inbound/outbound splits are provided in *Trip Generation Manual, 10th Edition* for High-Cube Cold Storage Warehouse (ITE 157) uses. Therefore, the splits for Warehouse (150) uses were utilized.

[c] Per LADOT's *Transportation Assessment Guidelines*, the morning and afternoon trip rates are based on Multi-Family High-Rise and Mid-Rise rates for Dense Multi-Use Urban Areas.

These rates are not subjected to any transit/walk-in adjustment.

[d] The Project's retail component utilized the Shopping Center (Land Use 820) rates from *Trip Generation Manual, 10th Edition*.

[e] AM peak hour inbound/outbound information is unavailable for Quality Restaurant use in *Trip Generation, 10th Edition*. Therefore, the AM peak hour inbound/outbound split for High-Turnover Restaurant use was utilized.

[f] The Project Site is located within 0.5 miles of the Metro Gold Line Little Tokyo/Arts District Station, therefore, a 10% transit reduction is applied to account for transit usage and walking visitor arrivals from the surrounding neighborhoods and adjacent commercial developments.

[g] Internal capture adjustments account for person trips made between distinct land uses within a mixed-use development (i.e. between residents and commercial uses) without using an off-site road system.

[h] 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.

[i] Net new Draft EIR / Entitlement Project trips detailed in Table 5 of the Approved TAR.

TABLE 2
VMT ANALYSIS SUMMARY
MODIFIED PROJECT

<i>Project Information</i>	
<u>Land Use</u>	Size
Housing Multi-Family Housing Units	1,589 units
Office General Office	411,113 sf
Retail General Retail	67,595 sf
Retail High-Turnover Sit-Down Restaurant	45,315 sf
Retail Quality Restaurant	45,315 sf
<i>Project Analysis [a]</i>	
Project Area Planning Commission	Central
Travel Behavior Zone [b]	Urban
Maximum Allowable VMT Reduction	75%
<i>VMT Analysis [c]</i>	
Daily Vehicle Trips	15,143
Daily VMT	99,069
Daily Household VMT	13,708
Household VMT per Capita [d]	3.8
Impact Threshold	6.0
Significant Impact	NO
Daily Work VMT	13,687
Work VMT per Employee [e]	6.4
Impact Threshold	7.6
Significant Impact	NO

Notes:

[a] Project Analysis based on the *City of Los Angeles VMT Calculator Version 1.3* (July 2020).

[b] An "Urban" TBZ is characterized in *City of Los Angeles VMT Calculator Documentation* (LADOT and DCP, May 2020) as high-density neighborhoods characterized by multi-story buildings with a dense road network.

[c] The following Project design features were accounted for in the VMT evaluation:

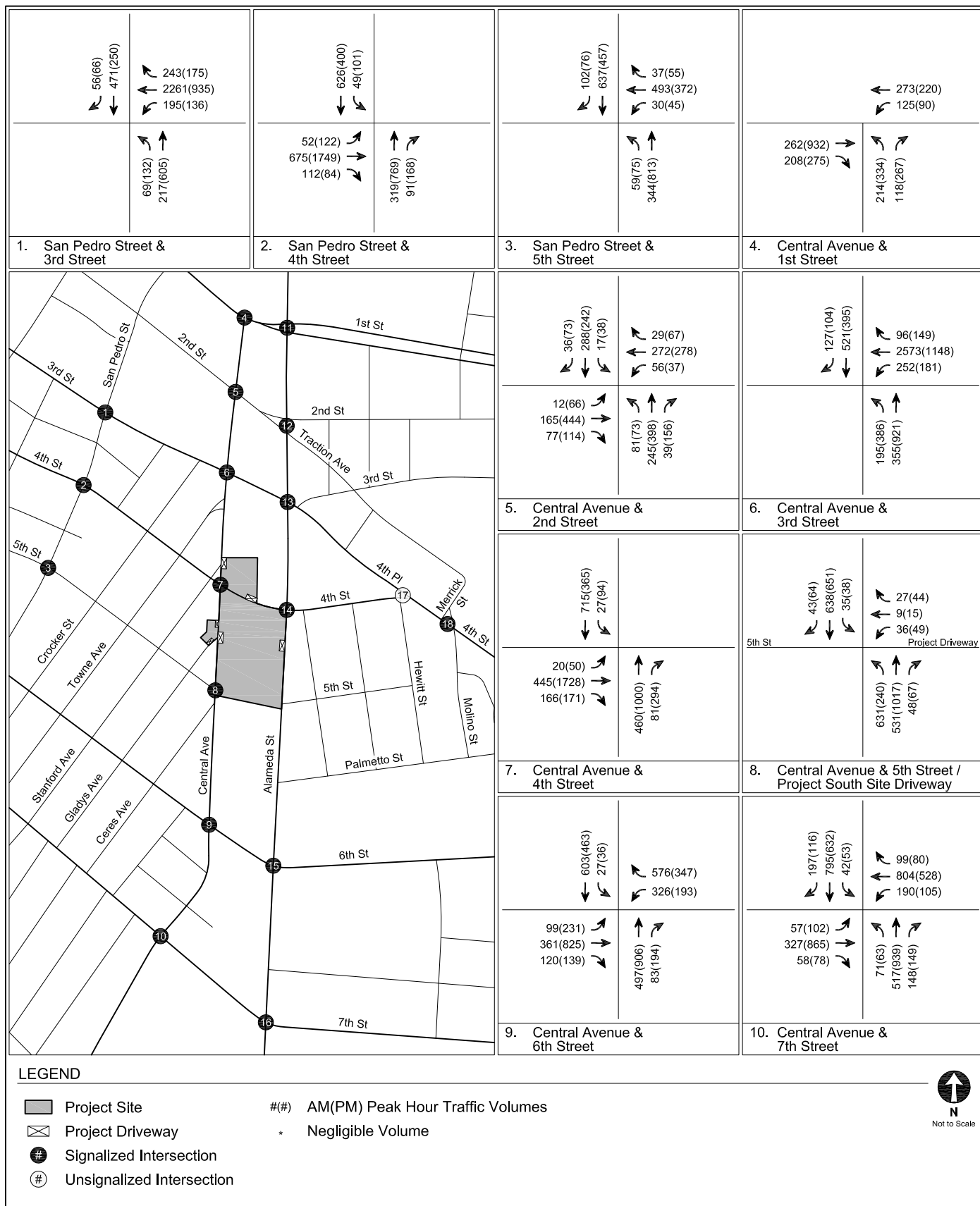
- Include bike parking per LAMC, including short-term and long-term parking facilities
- Reduced parking supply
- Parking cash-out
- Bicycle share station

[d] Based on home-based production trips only (see Appendix D, Report 4).

[e] Based on home-based work attraction trips only (see Appendix D, Report 4).

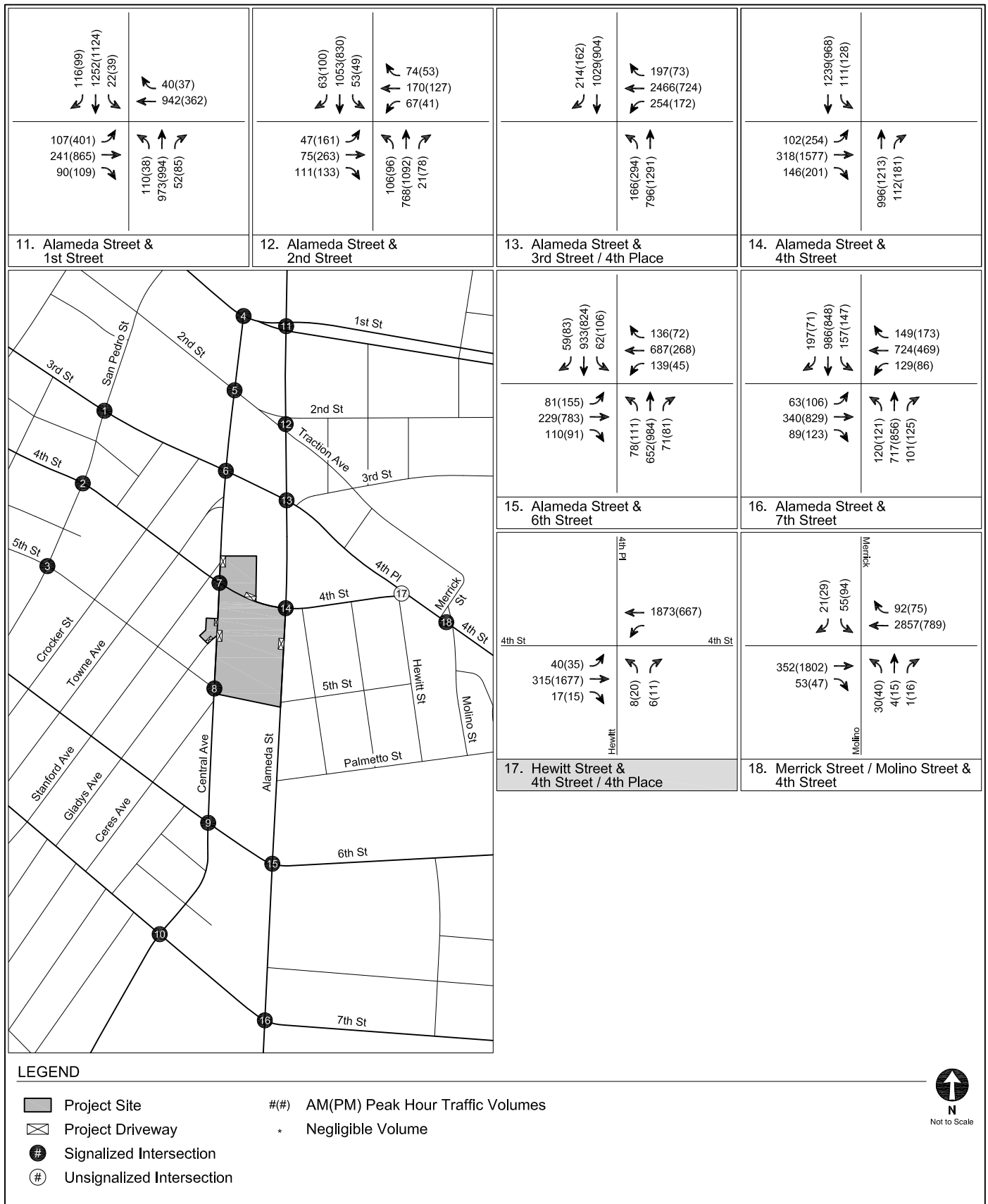
Attachment A

Modified Project Traffic Volumes



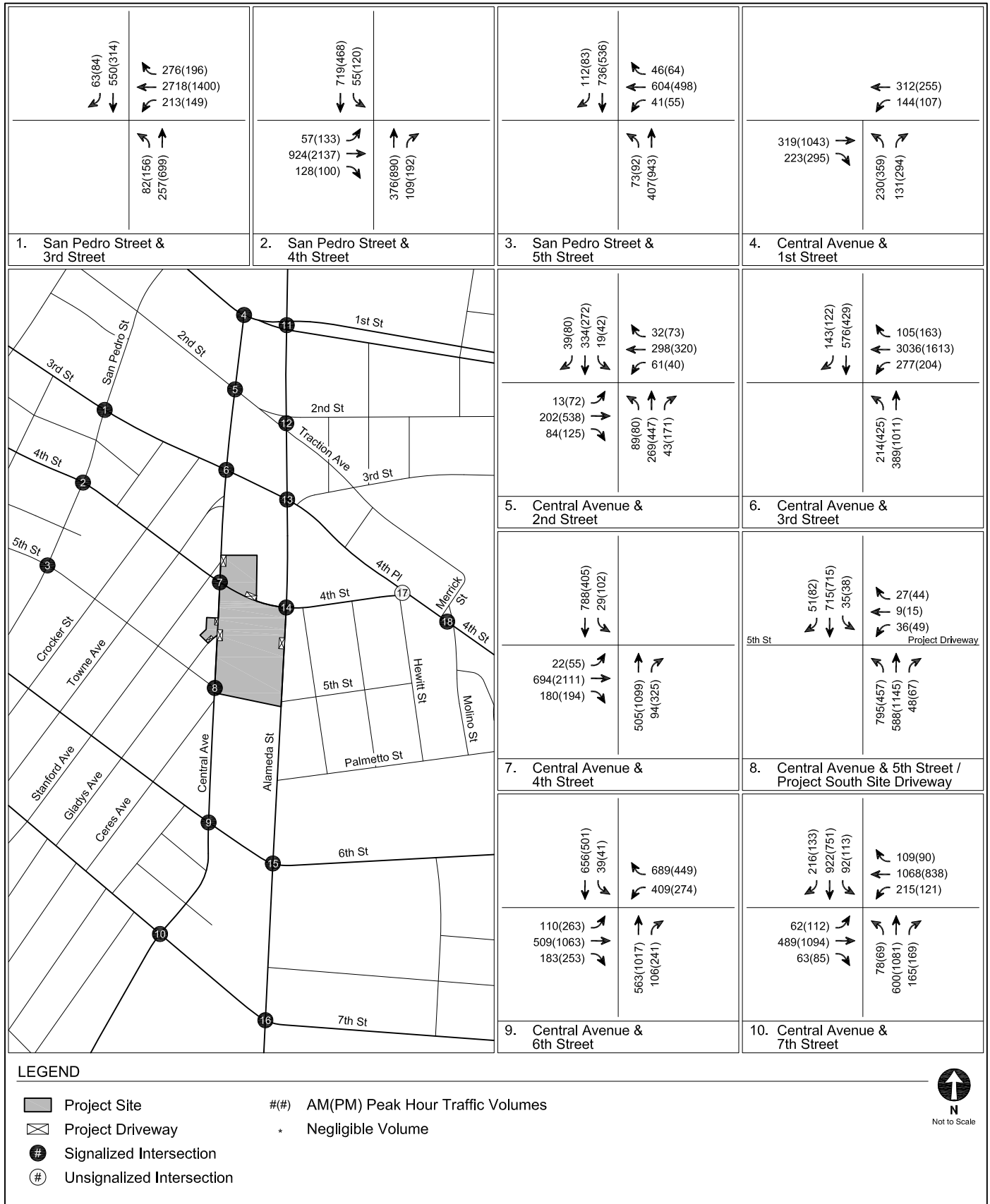
EXISTING WITH MODIFIED PROJECT CONDITIONS (YEAR 2021)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
A-1



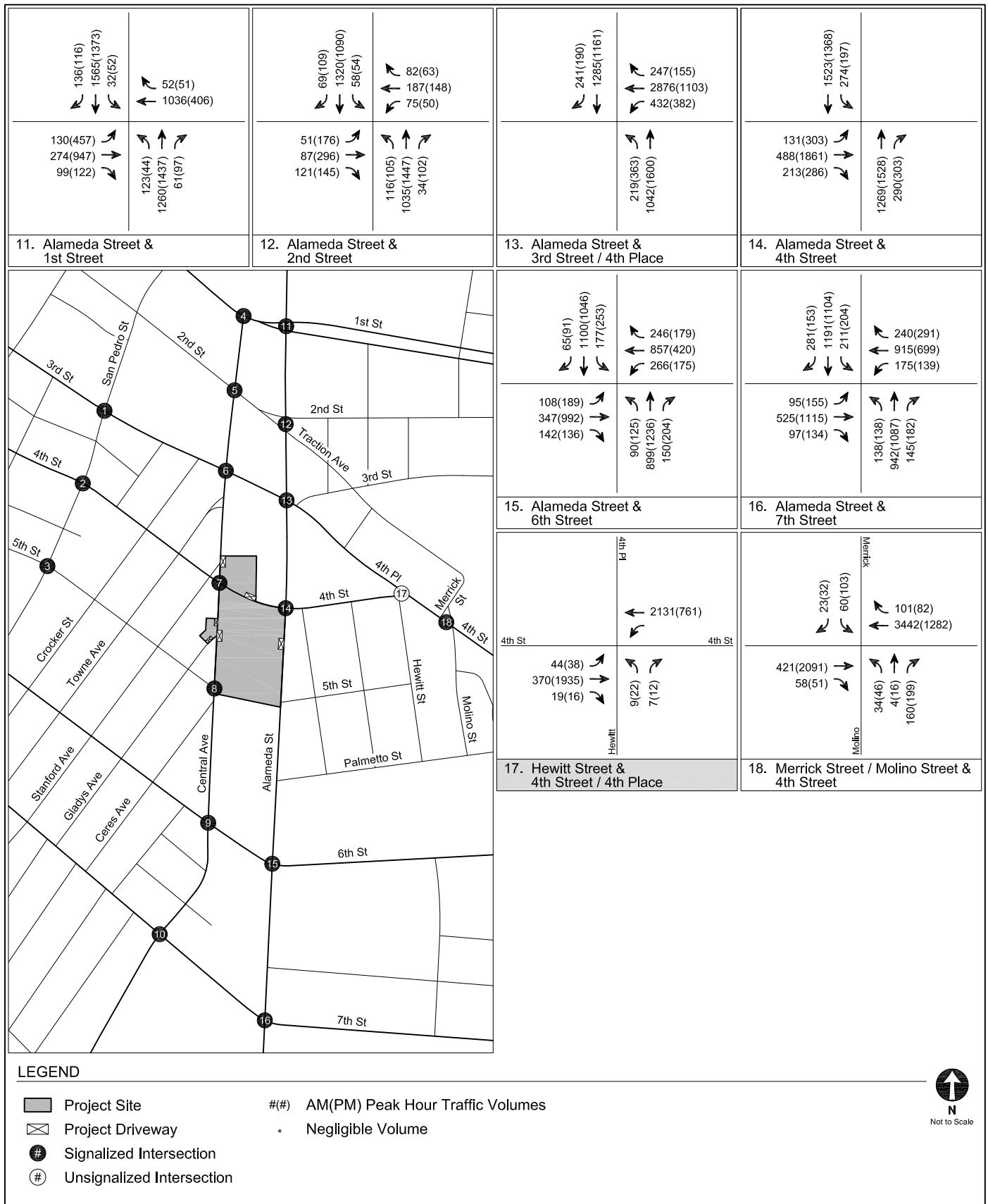
EXISTING WITH MODIFIED PROJECT CONDITIONS (YEAR 2021)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
A-1 (CONT.)



FUTURE WITH MODIFIED PROJECT CONDITIONS (YEAR 2030)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
A-2



FUTURE WITH MODIFIED PROJECT CONDITIONS (YEAR 2030)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
A-2 (CONT.)

Attachment B

VMT Calculator Summary

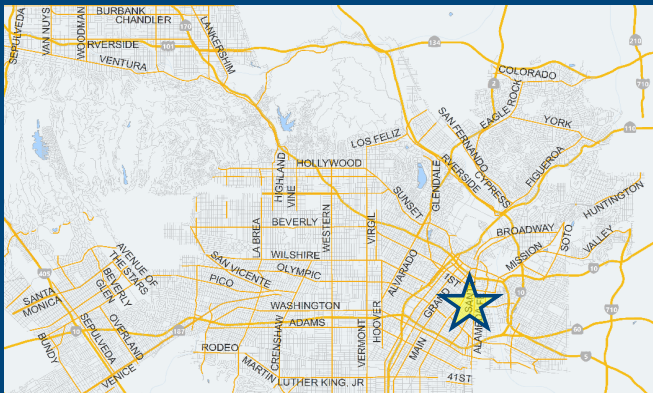
CITY OF LOS ANGELES VMT CALCULATOR Version 1.3



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

Project Information

Project: 4th & Central
 Scenario: Hotel-Residential Conversion
 Address: 400 S CENTRAL AVE, 90013



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	
Industrial Warehousing/Self-Storage	360.734	ksf	+
Industrial Warehousing/Self-Storage	360.734	ksf	

[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	34.15	ksf	+
Housing Multi-Family	1589	DU	
Office General Office	411.113	ksf	
Retail General Retail	67.595	ksf	
Retail High-Turnover Sit-Down Restaurant	45.315	ksf	
Retail Quality Restaurant	45.315	ksf	

[Click here to add a single custom land use type \(will be included in the above list\)](#)

Project Screening Summary

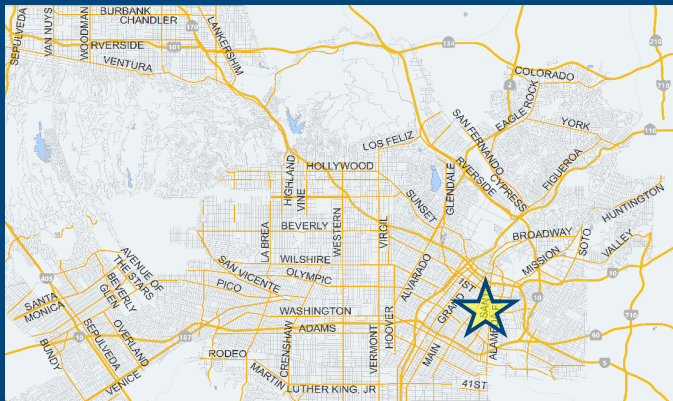
Existing Land Use	Proposed Project
659 Daily Vehicle Trips	16,352 Daily Vehicle Trips
4,518 Daily VMT	107,102 Daily VMT
Tier 1 Screening Criteria	
Project will have less residential units compared to existing residential units & is within one-half mile of a fixed-rail station. ☐	
Tier 2 Screening Criteria	
The net increase in daily trips < 250 trips	15,693 Net Daily Trips
The net increase in daily VMT ≤ 0	102,584 Net Daily VMT
The proposed project consists of only retail land uses ≤ 50,000 square feet total.	158.225 ksf
The proposed project is required to perform VMT analysis.	

CITY OF LOS ANGELES VMT CALCULATOR Version 1.3



Project Information

Project: 4th & Central
Scenario: Hotel-Residential Conversion
Address: 400 S CENTRAL AVE, 90013



Proposed Project Land Use Type

Proposed Project Land Use Type	Value	Unit
Housing Multi-Family	1589	DU
Office General Office	411.113	ksf
Retail General Retail	67.595	ksf
Retail High-Turnover Sit-Down Restaurant	45.315	ksf
Retail Quality Restaurant	45.315	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

Max Home Based TDM Achieved?

Proposed Project

No

With Mitigation

No

Max Work Based TDM Achieved?

No

No

A

Parking

Reduce Parking Supply

2788

city code parking provision for the project site

☒ Proposed Prj ☐ Mitigation

2444

actual parking provision for the project site

Unbundle Parking

☐ Proposed Prj ☐ Mitigation

25

monthly parking cost (dollar) for the project site

Parking Cash-Out

☒ Proposed Prj ☐ Mitigation

50

percent of employees eligible

Price Workplace Parking

6.00

daily parking charge (dollar)

☐ Proposed Prj ☐ Mitigation

50

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

15,143
Daily Vehicle Trips

99,069
Daily VMT

3.8
Household VMT
per Capita

6.4
Work VMT
per Employee

With Mitigation

15,143
Daily Vehicle Trips

99,069
Daily VMT

3.8
Household VMT
per Capita

6.4
Work VMT
per Employee

Significant VMT Impact?

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



CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: April 24, 2024

Project Name: 4th & Central

Project Scenario: Hotel-Residential Conversion

Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

Project Information			
Land Use Type		Value	Units
Housing	Single Family	0	DU
	Multi Family	1,589	DU
	Townhouse	0	DU
	Hotel	0	Rooms
	Motel	0	Rooms
Affordable Housing	Family	0	DU
	Senior	0	DU
	Special Needs	0	DU
	Permanent Supportive	0	DU
Retail	General Retail	67.595	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	45.315	ksf
	Fast-Food Restaurant	0.000	ksf
	Quality Restaurant	45.315	ksf
	Auto Repair	0.000	ksf
	Home Improvement	0.000	ksf
	Free-Standing Discount	0.000	ksf
	Movie Theater	0	Seats
Office	General Office	411.113	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

Project and Analysis Overview

3 of 11

CITY OF LOS ANGELES VMT CALCULATOR

Report 1: Project & Analysis Overview

Date: April 24, 2024

Project Name: 4th & Central

Project Scenario: Hotel-Residential Conversion

Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

Analysis Results			
Total Employees: 2,142			
Total Population: 3,581			
Proposed Project		With Mitigation	
15,143	Daily Vehicle Trips	15,143	Daily Vehicle Trips
99,069	Daily VMT	99,069	Daily VMT
3.8	Household VMT per Capita	3.8	Household VMT per Capita
6.4	Work VMT per Employee	6.4	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

CITY OF LOS ANGELES VMT CALCULATOR

Report 2: TDM Inputs

Date: April 24, 2024

Project Name: 4th & Central

Project Scenario: Hotel-Residential Conversion

Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

TDM Strategy Inputs				
Strategy Type		Description	Proposed Project	Mitigations
Parking	Reduce parking supply	City code parking provision (spaces)	2788	2788
		Actual parking provision (spaces)	2444	2444
	Unbundle parking	Monthly cost for parking (\$)	\$0	\$0
	Parking cash-out	Employees eligible (%)	50%	50%
	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)				

CITY OF LOS ANGELES VMT CALCULATOR

Report 2: TDM Inputs

Date: April 24, 2024

Project Name: 4th & Central

Project Scenario: Hotel-Residential Conversion

Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

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)				

CITY OF LOS ANGELES VMT CALCULATOR

Report 2: TDM Inputs

Date: April 24, 2024

Project Name: 4th & Central

Project Scenario: Hotel-Residential Conversion

Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

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
		Degree of implementation (low, medium, high)	0	0
	Employer sponsored vanpool or shuttle	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)	Yes	Yes
	School carpool program	Level of implementation (Low, Medium, High)	0	0
(cont. on following page)				

CITY OF LOS ANGELES VMT CALCULATOR

Report 2: TDM Inputs

Date: April 24, 2024

Project Name: 4th & Central

Project Scenario: Hotel-Residential Conversion

Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

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)	Yes	Yes
	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: April 24, 2024
 Project Name: 4th & Central
 Project Scenario: Hotel-Residential Conversion
 Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

TDM Adjustments by Trip Purpose & Strategy

Place type: Urban

TDM Strategy	sections 1 - 5	Appendix, Parking	Unbundle parking	Parking cash-out	Price workplace parking	Residential area parking	parking permits	Reduce transit headways	Implement neighborhood shuttle	Transit subsidies	Education & Encouragement		Commute Trip Reductions				Shared Mobility	
TDM Strategy	sections 1 - 5	Appendix, Parking	6%	0%	0%	0%	0.00%	0%	0%	0%	TDM Strategy	Appendix, Education & Encouragement sections 1 - 2	TDM Strategy	sections 1 - 4	Appendix, Shared Mobility sections 1 - 3	0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
TDM Strategy	sections 1 - 3	Appendix, Transit	6%	0%	0%	0%	0.00%	0%	0%	0%	TDM Strategy	Appendix, Education & Encouragement sections 1 - 2	TDM Strategy	sections 1 - 4	Appendix, Shared Mobility sections 1 - 3	0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
TDM Strategy	sections 1 - 3	Appendix, Transit	6%	0%	0%	0%	0.00%	0%	0%	0%	TDM Strategy	Appendix, Education & Encouragement sections 1 - 2	TDM Strategy	sections 1 - 4	Appendix, Shared Mobility sections 1 - 3	0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
TDM Strategy	sections 1 - 3	Appendix, Transit	6%	0%	0%	0%	0.00%	0%	0%	0%	TDM Strategy	Appendix, Education & Encouragement sections 1 - 2	TDM Strategy	sections 1 - 4	Appendix, Shared Mobility sections 1 - 3	0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
TDM Strategy	sections 1 - 3	Appendix, Transit	6%	0%	0%	0%	0.00%	0%	0%	0%	TDM Strategy	Appendix, Education & Encouragement sections 1 - 2	TDM Strategy	sections 1 - 4	Appendix, Shared Mobility sections 1 - 3	0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%
			0%	0%	0%	0%	0.00%	0%	0%	0%						0.25%	0.00%	0.00%



TDM Adjustments by Trip Purpose & Strategy, Cont.														
Place type: Urban														
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%
		Include bike parking per LAMC	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%
Include secure bike parking and showers		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%
		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%
Neighborhood Enhancement		TDM Strategy		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Neighborhood Enhancement sections 1 - 3		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Source		TDM Strategy		Proposed	Proposed	Proposed	Proposed	Proposed	Proposed	Proposed	Proposed	Proposed	Proposed	Proposed
		Attraction		Attraction	Production	Non-Home Based Other	Non-Home Based Other	Home Based Other	Home Based Other	Home Based Work	Home Based Other	Home Based Work	Home Based Other	Non-Home Based Other

Final Combined & Maximum TDM Effect													
Home Based Work						Home Based Other						Non-Home Based Other	
Production			Attraction			Production			Attraction			Production	Attraction
Proposed			Mitigated			Proposed			Mitigated			Proposed	Mitigated
7%			11%			7%			11%			7%	7%
Home Based Work			Home Based Work			Home Based Other			Home Based Other			Non-Home Based Other	Non-Home Based Other
Proposed			Mitigated			Proposed			Mitigated			Proposed	Mitigated
7%			11%			7%			11%			7%	7%
MAX. TDM EFFECT			COMBINED TOTAL										

$\text{Minimum}(X\%, 1 - [(1-A) * (1-B) \dots])$
where X% =

$= \text{Minimum}(X\%, 1 - [(1-A) * (1-B) \dots])$ where X%=	
PLACE	urban
TYPE	compact infill
MAX:	suburban center
	suburban
	15%
	20%
	40%
	75%

Note: (1-[1-A]*(1-B)...[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: April 24, 2024

Project Name: 4th & Central

Project Scenario: Hotel-Residential Conversion

Project Address: 400 S CENTRAL AVE, 90013



Version 1.3

MXD Methodology - Project Without TDM

	Unadjusted Trips	MXD Adjustment	MXD Trips	Average Trip Length	Unadjusted VMT	MXD VMT
Home Based Work Production	1,424	-33.6%	945	6.8	9,683	6,426
Home Based Other Production	3,945	-53.2%	1,847	4.5	17,753	8,312
Non-Home Based Other Production	4,650	-6.2%	4,363	7.4	34,410	32,286
Home-Based Work Attraction	2,743	-32.8%	1,844	8.3	22,767	15,305
Home-Based Other Attraction	8,192	-47.3%	4,317	5.8	47,514	25,039
Non-Home Based Other Attraction	3,255	-6.7%	3,036	6.5	21,158	19,734

MXD Methodology with TDM Measures

	<i>Proposed Project</i>			<i>Project with Mitigation Measures</i>		
	TDM Adjustment	Project Trips	Project VMT	TDM Adjustment	Mitigated Trips	Mitigated VMT
Home Based Work Production	-7.0%	879	5,977	-7.0%	879	5,977
Home Based Other Production	-7.0%	1,718	7,731	-7.0%	1,718	7,731
Non-Home Based Other Production	-7.0%	4,058	30,030	-7.0%	4,058	30,030
Home-Based Work Attraction	-10.6%	1,649	13,687	-10.6%	1,649	13,687
Home-Based Other Attraction	-7.0%	4,015	23,289	-7.0%	4,015	23,289
Non-Home Based Other Attraction	-7.0%	2,824	18,355	-7.0%	2,824	18,355

MXD VMT Methodology Per Capita & Per Employee

Total Population: 3,581

Total Employees: 2,142

APC: Central

	<i>Proposed Project</i>	<i>Project with Mitigation Measures</i>
<i>Total Home Based Production VMT</i>	13,708	13,708
<i>Total Home Based Work Attraction VMT</i>	13,687	13,687
<i>Total Home Based VMT Per Capita</i>	3.8	3.8
<i>Total Work Based VMT Per Employee</i>	6.4	6.4

Attachment C
Freeway Safety Analysis

**TABLE C-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 Modified Project Conditions			
I-5 North at 7th Street	1,452	0	1,452	AM	117	140	NO	NO	NO
				PM	38	44	NO	NO	NO
I-5 South at 4th Street	1,025	0	1,025	AM	495	478	NO	NO	NO
				PM	228	315	NO	YES	NO
US 101 North at 4th Street	820	0	820	AM	650	738	NO	YES	NO
				PM	265	295	NO	NO	NO
US 101 South at Los Angeles Street	494	0	494	AM	146	180	NO	NO	NO
				PM	7	10	NO	NO	NO
I-10 East at Naomi Avenue/Central Avenue	1,048	0	1,048	AM	230	238	NO	NO	NO
				PM	433	433	NO	NO	NO
I-10 East at Alameda Street	1,100	0	1,100	AM	685	723	NO	NO	NO
				PM	283	370	NO	YES	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 Modified Project Conditions queue.

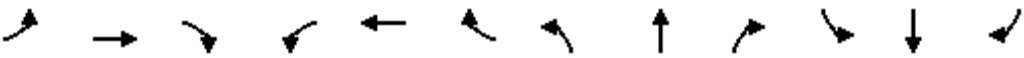
[c] The difference in queue length between Future with Modified Project Conditions and Future without Project Conditions.

[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.

HCM 6th Signalized Intersection Summary

23: 4th Street & I-5 SB Ramps

05/21/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	605	84	172	2121	0	0	0	0	113	3	538
Future Volume (veh/h)	0	605	84	172	2121	0	0	0	0	113	3	538
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	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	658	0	187	2305	0				123	3	585
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	2	2	2	0				2	2	2
Cap, veh/h	0	1109		220	1705	0				768	3	681
Arrive On Green	0.00	0.31	0.00	0.25	0.96	0.00				0.43	0.43	0.43
Sat Flow, veh/h	0	3647	1585	1781	3647	0				1781	8	1578
Grp Volume(v), veh/h	0	658	0	187	2305	0				123	0	588
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1781	0	1586
Q Serve(g_s), s	0.0	14.1	0.0	9.0	43.2	0.0				3.8	0.0	30.2
Cycle Q Clear(g_c), s	0.0	14.1	0.0	9.0	43.2	0.0				3.8	0.0	30.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	1109		220	1705	0				768	0	684
V/C Ratio(X)	0.00	0.59		0.85	1.35	0.00				0.16	0.00	0.86
Avail Cap(c_a), veh/h	0	1224		317	2014	0				768	0	684
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.10	0.10	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.1	0.0	33.1	1.8	0.0				15.6	0.0	23.1
Incr Delay (d2), s/veh	0.0	0.6	0.0	1.6	158.6	0.0				0.4	0.0	13.3
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(95%),veh/ln	0.0	9.9	0.0	4.4	52.0	0.0				2.9	0.0	19.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	26.8	0.0	34.7	160.4	0.0				16.1	0.0	36.4
LnGrp LOS	A	C		C	F	A				B	A	D
Approach Vol, veh/h		658			2492						711	
Approach Delay, s/veh		26.8			151.0						32.9	
Approach LOS		C			F						C	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			15.1	35.8		39.1		50.9				
Change Period (Y+Rc), s			4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s			16.0	31.0		31.0		51.0				
Max Q Clear Time (g_c+I1), s			11.0	16.1		32.2		45.2				
Green Ext Time (p_c), s			0.2	4.0		0.0		5.4				
Intersection Summary												
HCM 6th Ctrl Delay			108.1									
HCM 6th LOS			F									
Notes												
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary 25: Alameda Street & I-10 EB Ramps

05/21/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	396	0	650	0	1	2	455	1341	10	1	1031	527
Future Volume (veh/h)	396	0	650	0	1	2	455	1341	10	1	1031	527
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	430	0	707	0	1	2	495	1458	11	1	1121	573
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	356	0	0	0	2	4	420	2398	18	237	1647	1052
Arrive On Green	0.20	0.00	0.00	0.00	0.00	0.00	0.16	0.66	0.66	0.46	0.46	0.46
Sat Flow, veh/h	1781	430		0	557	1113	1781	3615	27	361	3554	1585
Grp Volume(v), veh/h	430	152.7		0	0	3	495	716	753	1	1121	573
Grp Sat Flow(s),veh/h/ln	1781	F		0	0	1670	1781	1777	1865	361	1777	1585
Q Serve(g_s), s	18.0			0.0	0.0	0.2	14.0	20.5	20.5	0.1	22.3	17.1
Cycle Q Clear(g_c), s	18.0			0.0	0.0	0.2	14.0	20.5	20.5	2.6	22.3	17.1
Prop In Lane	1.00			0.00		0.67	1.00		0.01	1.00		1.00
Lane Grp Cap(c), veh/h	356			0	0	5	420	1179	1238	237	1647	1052
V/C Ratio(X)	1.21			0.00	0.00	0.56	1.18	0.61	0.61	0.00	0.68	0.54
Avail Cap(c_a), veh/h	356			0	0	297	420	1179	1238	237	1647	1052
HCM Platoon Ratio	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0			0.0	0.0	44.8	23.2	8.5	8.5	14.4	18.9	8.0
Incr Delay (d2), s/veh	116.7			0.0	0.0	68.4	102.7	2.3	2.2	0.0	2.3	2.0
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	28.9			0.0	0.0	0.3	30.7	11.8	12.3	0.0	14.1	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	152.7			0.0	0.0	113.2	125.9	10.9	10.8	14.4	21.2	10.0
LnGrp LOS	F			A	A	F	F	B	B	B	C	B
Approach Vol, veh/h				3			1964			1695		
Approach Delay, s/veh				113.2			39.8			17.4		
Approach LOS				F			D			B		
Timer - Assigned Phs		2		5		6	7	8				
Phs Duration (G+Y+Rc), s		63.7		18.0		45.7	22.0	4.3				
Change Period (Y+Rc), s		4.0		4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		44.0		14.0		26.0	18.0	16.0				
Max Q Clear Time (g_c+I1), s		22.5		16.0		24.3	20.0	2.2				
Green Ext Time (p_c), s		11.2		0.0		1.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			42.5									
HCM 6th LOS			D									

HCM Unsignalized Intersection Capacity Analysis

182: Los Angeles Street & US 101 SB Off-Ramp

05/21/2024

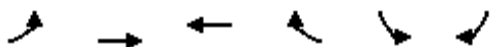


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗↘		↕↕	↕↕	
Traffic Volume (veh/h)	0	729	0	648	950	0
Future Volume (Veh/h)	0	729	0	648	950	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	792	0	704	1033	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1385	516	1033			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1385	516	1033			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	0	100			
cM capacity (veh/h)	134	504	668			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	396	396	352	352	516	516
Volume Left	0	0	0	0	0	0
Volume Right	396	396	0	0	0	0
cSH	504	504	1700	1700	1700	1700
Volume to Capacity	0.79	0.79	0.21	0.21	0.30	0.30
Queue Length 95th (ft)	180	180	0	0	0	0
Control Delay (s)	33.7	33.7	0.0	0.0	0.0	0.0
Lane LOS	D	D				
Approach Delay (s)	33.7		0.0		0.0	
Approach LOS	D					
Intersection Summary						
Average Delay			10.5			
Intersection Capacity Utilization			58.4%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

200: 7th Street & I-5 NB Off-Ramp

05/21/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Volume (veh/h)	10	543	1408	0	0	234
Future Volume (Veh/h)	10	543	1408	0	0	234
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	11	590	1530	0	0	254
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1530				1847	765
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1530				1847	765
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	27
cM capacity (veh/h)	431				64	346
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	208	393	765	765	254	
Volume Left	11	0	0	0	0	
Volume Right	0	0	0	0	254	
cSH	431	1700	1700	1700	346	
Volume to Capacity	0.03	0.23	0.45	0.45	0.73	
Queue Length 95th (ft)	2	0	0	0	140	
Control Delay (s)	1.1	0.0	0.0	0.0	39.4	
Lane LOS	A				E	
Approach Delay (s)	0.4		0.0		39.4	
Approach LOS					E	
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			60.1%		ICU Level of Service	B
Analysis Period (min)			15			

HCM 6th Signalized Intersection Summary 248: Naomi Ave & I-10 EB Off-Ramp

05/21/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	250	317	119	0	0	0	0	162	54	58	173	0
Future Volume (veh/h)	250	317	119	0	0	0	0	162	54	58	173	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	272	345	129				0	176	59	63	188	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	390	546	201				0	927	311	304	880	0
Arrive On Green	0.22	0.22	0.22				0.00	0.69	0.69	0.69	0.69	0.00
Sat Flow, veh/h	1779	2491	918				0	1340	449	366	1272	0
Grp Volume(v), veh/h	272	234	240				0	0	235	251	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	1705				0	0	1789	1638	0	0
Q Serve(g_s), s	12.7	11.2	11.5				0.0	0.0	4.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.7	11.2	11.5				0.0	0.0	4.2	4.3	0.0	0.0
Prop In Lane	1.00		0.54				0.00		0.25	0.25		0.00
Lane Grp Cap(c), veh/h	390	373	374				0	0	1238	1184	0	0
V/C Ratio(X)	0.70	0.63	0.64				0.00	0.00	0.19	0.21	0.00	0.00
Avail Cap(c_a), veh/h	831	794	796				0	0	1238	1184	0	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)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.4	31.8	31.9				0.0	0.0	4.9	4.9	0.0	0.0
Incr Delay (d2), s/veh	2.3	1.7	1.8				0.0	0.0	0.3	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	9.5	8.2	8.4				0.0	0.0	2.6	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	33.6	33.8				0.0	0.0	5.3	5.3	0.0	0.0
LnGrp LOS	C	C	C				A	A	A	A	A	A
Approach Vol, veh/h		746						235			251	
Approach Delay, s/veh		34.0						5.3			5.3	
Approach LOS		C						A			A	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		66.3		23.7		66.3						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		40.0		42.0		40.0						
Max Q Clear Time (g_c+I1), s		6.2		14.7		6.3						
Green Ext Time (p_c), s		1.5		5.0		1.6						
Intersection Summary												
HCM 6th Ctrl Delay			22.7									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

253: US 101 NB Off-Ramp & 4th Street

05/21/2024

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↖↖	
Traffic Volume (veh/h)	441	0	0	2188	1482	30
Future Volume (veh/h)	441	0	0	2188	1482	30
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	0	0	1870	1870	1870
Adj Flow Rate, veh/h	479	0	0	2378	1642	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	1619	0	0	2326	1623	722
Arrive On Green	0.46	0.00	0.00	0.46	0.46	0.00
Sat Flow, veh/h	3741	0	0	5443	3563	1585
Grp Volume(v), veh/h	479	0	0	2378	1642	0
Grp Sat Flow(s),veh/h/ln	1777	0	0	1702	1781	1585
Q Serve(g_s), s	7.6	0.0	0.0	41.0	41.0	0.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	41.0	41.0	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1619	0	0	2326	1623	722
V/C Ratio(X)	0.30	0.00	0.00	1.02	1.01	0.00
Avail Cap(c_a), veh/h	1619	0	0	2326	1623	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.4	0.0	0.0	24.5	24.5	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	24.5	25.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	0.0	0.0	28.4	29.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.5	0.0	0.0	49.0	49.8	0.0
LnGrp LOS	B	A	A	F	F	A
Approach Vol, veh/h	479			2378	1642	
Approach Delay, s/veh	15.5			49.0	49.8	
Approach LOS	B			D	D	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	45.0		45.0		45.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	41.0		41.0		41.0	
Max Q Clear Time (g_c+l1), s	43.0		9.6		43.0	
Green Ext Time (p_c), s	0.0		3.5		0.0	
Intersection Summary						
HCM 6th Ctrl Delay			45.7			
HCM 6th LOS			D			
Notes						

HCM 6th Signalized Intersection Summary

23: 4th Street & I-5 SB Ramps

05/21/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑	↑↑					↑	↑	
Traffic Volume (veh/h)	0	2053	98	116	969	0	0	0	0	167	2	232
Future Volume (veh/h)	0	2053	98	116	969	0	0	0	0	167	2	232
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	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	2232	0	126	1053	0				182	2	252
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	2	2	2	0				2	2	2
Cap, veh/h	0	2172		139	2606	0				317	2	280
Arrive On Green	0.00	0.61	0.00	0.16	1.00	0.00				0.18	0.18	0.18
Sat Flow, veh/h	0	3647	1585	1781	3647	0				1781	12	1574
Grp Volume(v), veh/h	0	2232	0	126	1053	0				182	0	254
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1781	1777	0				1781	0	1587
Q Serve(g_s), s	0.0	55.0	0.0	6.3	0.0	0.0				8.4	0.0	14.1
Cycle Q Clear(g_c), s	0.0	55.0	0.0	6.3	0.0	0.0				8.4	0.0	14.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.99
Lane Grp Cap(c), veh/h	0	2172		139	2606	0				317	0	282
V/C Ratio(X)	0.00	1.03		0.91	0.40	0.00				0.57	0.00	0.90
Avail Cap(c_a), veh/h	0	2172		139	2606	0				317	0	282
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.10	0.10	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.5	0.0	37.7	0.0	0.0				33.9	0.0	36.2
Incr Delay (d2), s/veh	0.0	26.8	0.0	9.1	0.0	0.0				7.4	0.0	33.1
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(95%),veh/ln	0.0	36.5	0.0	3.7	0.0	0.0				7.6	0.0	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.3	0.0	46.8	0.0	0.0				41.3	0.0	69.4
LnGrp LOS	A	F		D	A	A				D	A	E
Approach Vol, veh/h		2232			1179						436	
Approach Delay, s/veh		44.3			5.0						57.6	
Approach LOS		D			A						E	
Timer - Assigned Phs			3	4		6		8				
Phs Duration (G+Y+Rc), s			11.0	59.0		20.0		70.0				
Change Period (Y+Rc), s			4.0	4.0		4.0		4.0				
Max Green Setting (Gmax), s			7.0	55.0		16.0		66.0				
Max Q Clear Time (g_c+I1), s			8.3	57.0		16.1		2.0				
Green Ext Time (p_c), s			0.0	0.0		0.0		10.4				
Intersection Summary												
HCM 6th Ctrl Delay			33.8									
HCM 6th LOS			C									
Notes												

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary 25: Alameda Street & I-10 EB Ramps

05/21/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	0	276	0	0	9	517	1287	0	0	1511	576
Future Volume (veh/h)	115	0	276	0	0	9	517	1287	0	0	1511	576
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	125	0	300	0	0	10	562	1399	0	0	1642	626
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	79	0	0	0	0	16	452	2887	0	80	2058	988
Arrive On Green	0.04	0.00	0.00	0.00	0.00	0.01	0.19	0.81	0.00	0.00	0.58	0.58
Sat Flow, veh/h	1781	125		0	0	1585	1781	3647	0	386	3554	1585
Grp Volume(v), veh/h	125	355.2		0	0	10	562	1399	0	0	1642	626
Grp Sat Flow(s),veh/h/ln	1781	F		0	0	1585	1781	1777	0	386	1777	1585
Q Serve(g_s), s	4.0			0.0	0.0	0.6	17.0	11.0	0.0	0.0	32.5	22.1
Cycle Q Clear(g_c), s	4.0			0.0	0.0	0.6	17.0	11.0	0.0	0.0	32.5	22.1
Prop In Lane	1.00			0.00		1.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	79			0	0	16	452	2887	0	80	2058	988
V/C Ratio(X)	1.58			0.00	0.00	0.64	1.24	0.48	0.00	0.00	0.80	0.63
Avail Cap(c_a), veh/h	79			0	0	282	452	2887	0	80	2058	988
HCM Platoon Ratio	1.00			1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00			0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	43.0			0.0	0.0	44.4	28.7	2.6	0.0	0.0	14.8	10.5
Incr Delay (d2), s/veh	312.2			0.0	0.0	36.5	126.6	0.6	0.0	0.0	3.3	3.1
Initial Q Delay(d3),s/veh	0.0			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	14.8			0.0	0.0	0.7	37.5	4.2	0.0	0.0	18.4	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	355.2			0.0	0.0	80.9	155.3	3.2	0.0	0.0	18.2	13.6
LnGrp LOS	F			A	A	F	F	A	A	A	B	B
Approach Vol, veh/h					10				1961			
Approach Delay, s/veh					80.9				46.8			
Approach LOS					F				D			
Timer - Assigned Phs	2			5		6	7	8				
Phs Duration (G+Y+Rc), s	77.1			21.0		56.1	8.0	4.9				
Change Period (Y+Rc), s	4.0			4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	58.0			17.0		37.0	4.0	16.0				
Max Q Clear Time (g_c+I1), s	13.0			19.0		34.5	6.0	2.6				
Green Ext Time (p_c), s	15.6			0.0		2.3	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	40.2											
HCM 6th LOS	D											

HCM Unsignalized Intersection Capacity Analysis

182: Los Angeles Street & US 101 SB Off-Ramp

05/21/2024

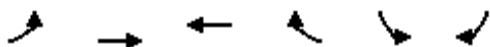


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗↗		↕↕	↕↕	
Traffic Volume (veh/h)	0	177	0	1726	315	0
Future Volume (Veh/h)	0	177	0	1726	315	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	192	0	1876	342	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1280	171	342			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1280	171	342			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	77	100			
cM capacity (veh/h)	158	843	1214			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	96	96	938	938	171	171
Volume Left	0	0	0	0	0	0
Volume Right	96	96	0	0	0	0
cSH	843	843	1700	1700	1700	1700
Volume to Capacity	0.11	0.11	0.55	0.55	0.10	0.10
Queue Length 95th (ft)	10	10	0	0	0	0
Control Delay (s)	9.8	9.8	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	9.8		0.0		0.0	
Approach LOS	A					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			51.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

200: 7th Street & I-5 NB Off-Ramp

05/21/2024



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			↑
Traffic Volume (veh/h)	17	1066	609	0	0	231
Future Volume (Veh/h)	17	1066	609	0	0	231
Sign Control		Free	Free		Yield	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	1159	662	0	0	251
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	662				1278	331
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	662				1278	331
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	62
cM capacity (veh/h)	922				155	665
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	
Volume Total	404	773	331	331	251	
Volume Left	18	0	0	0	0	
Volume Right	0	0	0	0	251	
cSH	922	1700	1700	1700	665	
Volume to Capacity	0.02	0.45	0.19	0.19	0.38	
Queue Length 95th (ft)	1	0	0	0	44	
Control Delay (s)	0.6	0.0	0.0	0.0	13.7	
Lane LOS	A				B	
Approach Delay (s)	0.2		0.0		13.7	
Approach LOS					B	
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			44.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM 6th Signalized Intersection Summary 248: Naomi Ave & I-10 EB Off-Ramp

05/21/2024

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑						↑			↑	
Traffic Volume (veh/h)	148	194	492	0	0	0	0	93	117	107	249	0
Future Volume (veh/h)	148	194	492	0	0	0	0	93	117	107	249	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	161	211	535				0	101	127	116	271	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	560	797	614				0	394	496	264	593	0
Arrive On Green	0.39	0.39	0.39				0.00	0.52	0.52	0.52	0.52	0.00
Sat Flow, veh/h	1445	2055	1585				0	753	947	406	1134	0
Grp Volume(v), veh/h	200	172	535				0	0	228	387	0	0
Grp Sat Flow(s),veh/h/ln	1798	1702	1585				0	0	1700	1539	0	0
Q Serve(g_s), s	6.9	6.2	28.1				0.0	0.0	6.6	8.8	0.0	0.0
Cycle Q Clear(g_c), s	6.9	6.2	28.1				0.0	0.0	6.6	15.4	0.0	0.0
Prop In Lane	0.80		1.00				0.00		0.56	0.30		0.00
Lane Grp Cap(c), veh/h	697	660	614				0	0	890	858	0	0
V/C Ratio(X)	0.29	0.26	0.87				0.00	0.00	0.26	0.45	0.00	0.00
Avail Cap(c_a), veh/h	839	794	740				0	0	890	858	0	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)	1.00	1.00	1.00				0.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.0	18.8	25.5				0.0	0.0	11.8	13.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.2	9.6				0.0	0.0	0.7	1.7	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(95%),veh/ln	5.1	4.3	17.3				0.0	0.0	4.6	8.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.2	19.0	35.1				0.0	0.0	12.5	15.6	0.0	0.0
LnGrp LOS	B	B	D				A	A	B	B	A	A
Approach Vol, veh/h		907						228			387	
Approach Delay, s/veh		28.5						12.5			15.6	
Approach LOS		C						B			B	
Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		51.1		38.9		51.1						
Change Period (Y+Rc), s		4.0		4.0		4.0						
Max Green Setting (Gmax), s		40.0		42.0		40.0						
Max Q Clear Time (g_c+I1), s		8.6		30.1		17.4						
Green Ext Time (p_c), s		1.5		4.8		2.5						
Intersection Summary												
HCM 6th Ctrl Delay			22.8									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

253: US 101 NB Off-Ramp & 4th Street

05/21/2024

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑↑	↖↗	
Traffic Volume (veh/h)	1455	0	0	788	445	268
Future Volume (veh/h)	1455	0	0	788	445	268
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	0	0	1870	1870	1870
Adj Flow Rate, veh/h	1582	0	0	857	388	394
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	0	2	2	2
Cap, veh/h	1851	0	0	2660	695	619
Arrive On Green	0.52	0.00	0.00	0.52	0.39	0.39
Sat Flow, veh/h	3741	0	0	5443	1781	1585
Grp Volume(v), veh/h	1582	0	0	857	388	394
Grp Sat Flow(s),veh/h/ln	1777	0	0	1702	1781	1585
Q Serve(g_s), s	34.6	0.0	0.0	8.7	15.3	18.2
Cycle Q Clear(g_c), s	34.6	0.0	0.0	8.7	15.3	18.2
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	1851	0	0	2660	695	619
V/C Ratio(X)	0.85	0.00	0.00	0.32	0.56	0.64
Avail Cap(c_a), veh/h	2053	0	0	2950	695	619
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	0.0	0.0	12.4	21.4	22.3
Incr Delay (d2), s/veh	3.5	0.0	0.0	0.1	3.2	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.0	0.0	0.0	5.7	11.0	11.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.1	0.0	0.0	12.5	24.6	27.2
LnGrp LOS	C	A	A	B	C	C
Approach Vol, veh/h	1582			857	782	
Approach Delay, s/veh	22.1			12.5	25.9	
Approach LOS	C			B	C	
Timer - Assigned Phs	2		4		8	
Phs Duration (G+Y+Rc), s	39.1		50.9		50.9	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	30.0		52.0		52.0	
Max Q Clear Time (g_c+l1), s	20.2		36.6		10.7	
Green Ext Time (p_c), s	2.1		10.3		7.3	
Intersection Summary						
HCM 6th Ctrl Delay			20.5			
HCM 6th LOS			C			
Notes						

