Transportation Impact Study for the 2240 Nord Avenue Apartments Project

Prepared for the City of Chico

Submitted by
W-Trans

February 1, 2024

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Executive Summary

The proposed project would include 208 multi-family apartment units and be located on a currently vacant site on the north side of Nord Avenue east of West Lindo Avenue. The project would be expected to generate an average of 1,402 new trips per day, including 83 trips during the weekday a.m. peak hour and 106 trips during the weekday p.m. peak hour.

The study area consisted of the sections of Nord Avenue and West Lindo Avenue fronting the project site and the intersections of Nord Avenue/East Avenue, Nord Avenue/West Lindo Avenue, and Nord Avenue/West 8th Avenue.

The proposed project would not conflict with any plans or policies for transportation facilities assuming the design of the frontage improvements on West Lindo Avenue and Nord Avenue is coordinated with City and Caltrans staff in consideration of the planned Highway 32 corridor improvements and the future provision of a Class I pathway on West Lindo Avenue, as identified in the City's Draft *Active Transportation Plan* (ATP).

Based on OPR guidance and information contained within the Butte County Association of Governments (BCAG) travel demand model, the project's impact on VMT would be considered less than significant.

The project site would be accessed by a new gated driveway on West Lindo Avenue; an emergency access only connection would be provided to Ruskin Street. Existing sight lines are adequate to accommodate all turns into and out of the proposed project access on West Lindo Avenue. To maintain adequate sight lines, it is recommended that the placement of signs or tall landscaping be avoided near the driveway, as appears to be indicated on the site plans provided. A left-turn lane is not warranted on West Lindo Avenue at the project driveway. Queueing at the entrance gate is not anticipated to spill onto West Lindo Avenue due to the service rate of the gate and the available storage between the gate and the public street.

The proposed frontage improvements for West Lindo Avenue are consistent with the City's requirements for arterial roadways and site access and circulation would function acceptably for emergency response vehicles with implementation of applicable design standards to the site layout. The proposed project would have a less-than-significant impact on emergency access and response times.

Queues would remain within existing and proposed left-turn storage at all three study intersections except for the eastbound and southbound left-turn lanes at Nord Avenue/West East Avenue. Eastbound left-turn queues could extend into the existing TWLTL on Nord Avenue and while the project would increase southbound left-turn queues by one to two vehicles during each peak hour, queues would not extend to the railroad tracks and adequate following sight distance would be available on southbound West East Avenue so the project would not create any new safety hazards. Its impact on queuing would therefore be considered less than significant.

Upon the addition of project trips to the existing traffic volumes, Nord Avenue/West East Avenue would operate at LOS E, Nord Avenue/West Lindo Avenue would operate at LOS B with signalization, and Nord Avenue/West 8th Avenue would operate at LOS D. Caltrans does not have a policy related to Levels of Service, though these service levels would meet City standards since the Nord Avenue corridor is served by scheduled transit. The project's effect on operations is therefore considered acceptable.

Upon the addition of project trips to the anticipated future volumes and with signalization of Nord Avenue/West Lindo Avenue, the study intersections are expected to continue operating at the same Levels of Service as without project trips. As a result, the project's long-term effect on operations is considered acceptable, though capacity improvements to the intersection of Nord Avenue/East Avenue would be needed to address the high delays and LOS F operations expected under buildout volumes without the project.

The proposed vehicle parking supply of 368 parking spaces and bicycle parking supply of 212 spaces would satisfy the City's parking requirements.

Introduction

This report presents an analysis of the potential transportation impacts and adverse operational effects that would be associated with development of the proposed multi-family residential project to be located on the north side of Nord Avenue (Highway 32) east of West Lindo Avenue in the City of Chico. The transportation study was completed in accordance with the criteria established by the City of Chico, reflects a scope of work requested by City staff, and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a transportation impact study (TIS) is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential transportation impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to an acceptable level under the California Environmental Quality Act (CEQA), the City's General Plan, or other policies. This report provides an analysis of those items that are identified as areas of environmental concern under CEQA and that, if significant, require an Environmental Impact Report (EIR). Impacts associated with access for pedestrians, bicyclists, and to transit; the vehicle miles traveled (VMT) generated by the project; potential safety concerns; and emergency access are addressed in the context of the CEQA criteria. While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections and need for improvements to maintain acceptable operation. Adequacy of parking is also addressed as a policy issue.

The report is organized to provide background data that supports the various aspects of the analysis, followed by the assessment of CEQA issues and then evaluation of policy-related issues. The CEQA criteria evaluated are as follows.

Would the project:

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
b. Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
d. Result in inadequate emergency access?

Project Profile

The project as proposed includes 208 multi-family apartment units to be located on a currently vacant site on the north side of Nord Avenue east of West Lindo Avenue, as shown in Figure 1. The site would be accessed via a driveway on West Lindo Avenue and an emergency vehicle access (EVA) gate on Ruskin Street. The project would provide 368 vehicle parking spaces and 212 bicycle parking spaces via bike racks located near each apartment building.

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Figure 1 – Study Area and Existing Lane Configurations

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Transportation Setting

Study Area and Periods

The study area varies depending on the topic. For pedestrian trips it consists of all streets within a half-mile of the project site that would lie along primary routes of pedestrian travel, or those leading to nearby attractors. For bicycle trips it consists of all streets within one mile of the project site that would lie along primary routes of bicycle travel. For the safety and operational analyses, it consists of the project frontage on West Lindo Avenue, the project access point, and the following intersections selected with input from City staff:

1. Nord Avenue/West East Avenue
2. Nord Avenue/West Lindo Avenue
3. Nord Avenue/West 8th Avenue

Operating conditions during the weekday a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Multimodal intersection turning movement counts were obtained for the study intersections on Tuesday October 24, 2023, during clear weather and while local schools were in session.

Study Intersections

Nord Avenue/West East Avenue is a signalized intersection with dedicated left-turn lanes and protected left-turn phasing on all four approaches. Marked crosswalks, curb ramps, and pedestrian phasing are provided on all legs of the intersection. No truncated domes are present on the curb ramps. There are sidewalks provided along the north side of Nord Avenue and along the east side of the north leg of West East Avenue.

Nord Avenue/West Lindo Avenue is a four-legged intersection with stop controls on the northbound and southbound minor street approaches of West Lindo Avenue. There are no marked crosswalks or sidewalks at the intersection. A traffic signal is planned to be installed by Caltrans along with new sidewalk as part of a corridor improvements project for Highway 32; Caltrans staff has indicated that construction of the improvements is expected to begin during the summer of 2024.

Nord Avenue/West 8th Avenue is a four-legged signalized intersection with marked crosswalks, curb ramps, sidewalks, and pedestrian phasing on all legs of the intersection, though truncated domes are not present on the curb ramps. All four approaches have protected left-turn phasing.

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

Study Streets

Nord Avenue (Highway 32) is an east-west arterial street with one vehicle travel lane in each direction, a center two-way left-turn lane (TWLTL), and a posted speed limit of 35 miles per hour (mph). A Class II bicycle lane is present on the south side of the study street from Arbor Drive to 8th Street. Shoulder widths vary from nine to 11 feet along the north side of the study street and are about seven feet wide along the south side. Pedestrian access via sidewalks is provided, however sidewalks are largely discontinuous along the segment.

West Lindo Avenue is a north-south arterial street with one lane in each direction and a posted speed limit of 25 mph along the project frontage. A railroad crossing is present about 670 feet north of the intersection with Nord Avenue. No sidewalks or bike facilities are present in the study area.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol (CHP) as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available at the time of this analysis is January 1, 2018, through December 31, 2022.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2020 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). The intersections of Nord Avenue/West East Avenue and Nord Avenue/West 8th Avenue were compared to other four-legged signalized intersections in an urban environment. The intersection of Nord Avenue and West Lindo Avenue was compared to other four-legged intersections with two-way stop controls in an urban environment. All three intersections experienced rates below the Statewide averages indicating that they are operating within normal safety parameters. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2018-2022)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. Nord Ave/West East Ave	2	0.05	0.33
2. Nord Ave/West Lindo Ave	2	0.07	0.20
3. Nord Ave/West 8th Ave	3	0.07	0.33

Note: c/mve = collisions per million vehicles entering

Project Data

The project consists of 208 multi-family apartment units that would be built on a currently vacant lot. The proposed project site plan is shown in Figure 2.

Trip Generation

The anticipated trip generation for the proposed project was estimated based on standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021, for "Multifamily Housing (Low-Rise) Not Close to Rail Transit" (ITE LU #220). As shown in Table 2, the proposed project would be expected to generate an average of 1,402 trips ends daily, including 83 trips during the morning peak hour and 106 trips during the evening peak hour.

Table 2 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
MF Housing Low Rise	208 du	6.74	1,402	0.40	83	20	63	0.51	106	67	39

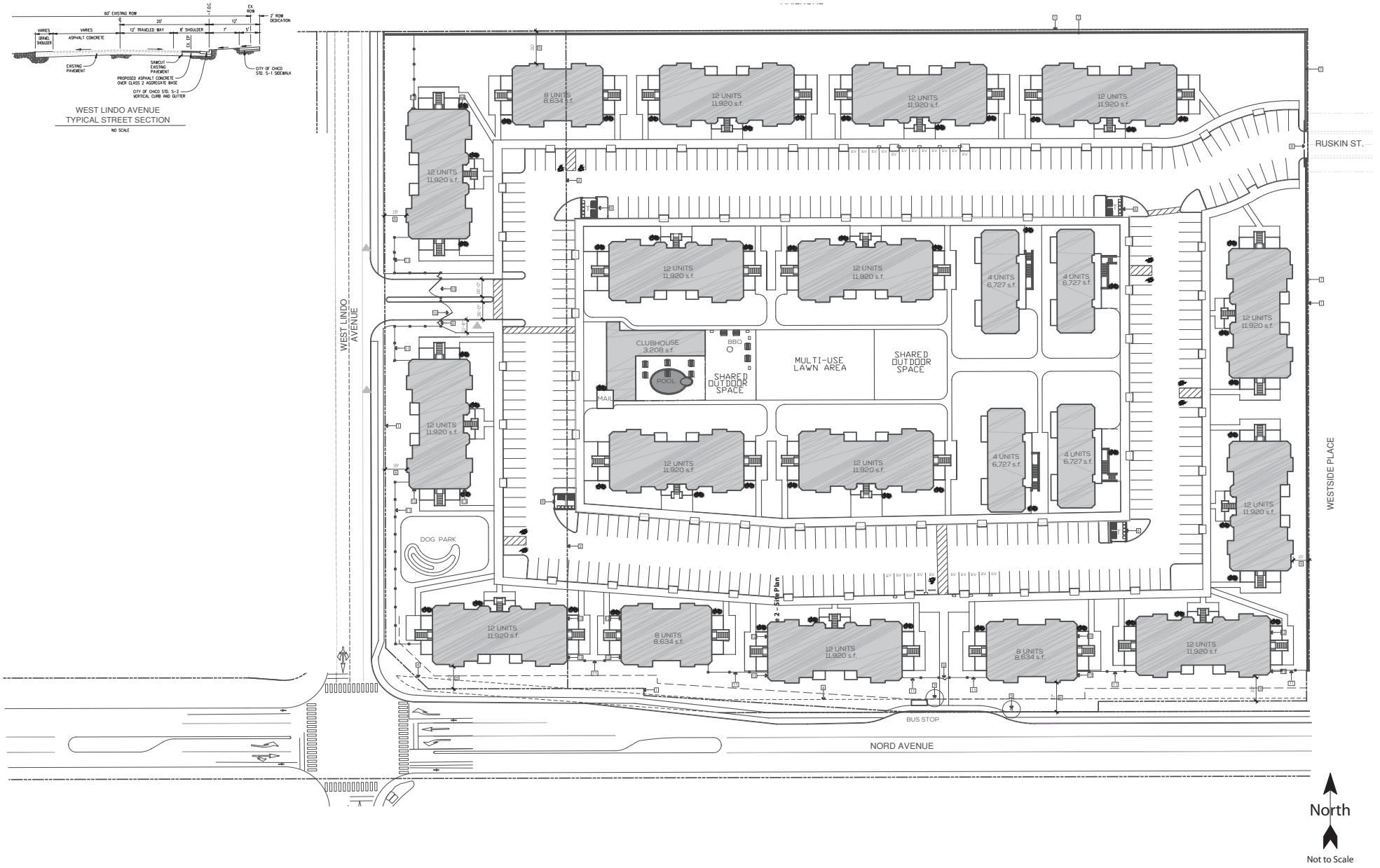
Notes: du = dwelling unit; MF = Multifamily

Trip Distribution

The project is located on the southwesterly edge of the City, so it is anticipated that most trips would be oriented to/from the east on Nord Avenue where nearby employment and school uses are located and to/from the north on East Avenue which provides the most direct access to State Route (SR) 99. The applied assumptions approved by City staff are shown in Table 3.

Table 3 – Trip Distribution Assumptions

Route	Percent
Nord Ave East of the Project	65%
East Ave North of the Project	30%
Nord Ave West of the Project	5%
TOTAL	**100%**



Source: r.g.a. 12/21

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Figure 2 – Site Plan

Circulation System

This section addresses the first transportation bullet point on the CEQA checklist, which relates to the potential for a project to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Pedestrian Facilities

Existing and Planned Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks, crosswalks, pedestrian signals, and curb ramps provide access for pedestrians in the vicinity of the proposed project site; however, sidewalk gaps can be found along the roadways connecting to the project site. Existing gaps on Nord Avenue and West Lindo Avenue impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points.

- **Nord Avenue** – Limited sidewalk coverage is provided on Nord Avenue in the vicinity of the project site with intermittent curb ramps and crosswalks at side street approaches. Lighting is provided by overhead streetlights at intersections. The project as proposed would install sidewalks along the project frontage. Sidewalks are present at the following locations:
    - North side of the street from the intersection with East Avenue to about 320 feet east of the intersection;
    - South side of the street from about 150 feet west of the intersection with Lindo Avenue to the west end of the Nord Avenue Bridge over the Lindo Channel;
    - Approximately 125 feet west of Purcell Lane to about 500 east of Rossetti Lane on the north side of the street;
    - South side of Nord Avenue between Oak Way and 8th Street; and
    - Approximately 240 feet west of 8th Avenue on the north side of the street.

- **West Lindo Avenue** – Sidewalks are provided on the east side of the street approximately 340 feet north of the project site between Trenta Drive and Fern Avenue. Sidewalks and streetlighting are not currently present along the project site frontage, though they would be installed as part of the project.

According to the *City of Chico Draft Active Transportation Plan,* 2023, (Draft ATP) pedestrian crossing improvements, including high visibility crosswalk markings and curb ramp upgrades are planned at the intersection of Nord Avenue/West 8th Avenue. Additionally, a Class I shared-use path is planned along West Lindo Avenue from Nord Avenue to SR 99 and along the railroad from West Lindo Avenue to the western City limits.

Additionally, Caltrans plans to install a traffic signal and other pedestrian improvements including sections of sidewalk at Nord Avenue/West Lindo Avenue, as shown on the design plans for the improvements and identified in the *Butte – 32 Chico Rehabilitation Project Initial Study with Proposed Negative Declaration*, Caltrans, 2021.

Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians. For the same study period detailed above, there was one reported collision involving a pedestrian in the study area which occurred at the intersection of Nord Avenue/West East Avenue; a pedestrian right-of-way violation was cited as the primary collision factor. A single collision within a five-year span involving a pedestrian and attributed to a pedestrian infraction is not generally considered a safety issue. Since no clear pattern of behavior can be determined from a single incident and given that the traffic signal already has marked crosswalks with pedestrian phasing on all four legs of the intersection, no remedial action appears necessary.

Project Impacts on Pedestrian Facilities

Given the proximity of nearby commercial and residential land uses, it is reasonable to assume that some project residents will want to walk to reach nearby destinations. The project as proposed would result in the construction of sidewalks along the frontages with both Nord Avenue and West Lindo Avenue, consistent with City policy thereby improving circulation for pedestrians in the project vicinity. The planned signalization of the intersection of Nord Avenue/West Lindo Avenue would provide a controlled opportunity for pedestrians to cross from one side of Nord Avenue to the other which would be considered a safety enhancement compared to the existing uncontrolled condition. The project applicant should coordinate the design of the frontage improvements on Nord Avenue with Caltrans so that there is consistency between the improvements that would be constructed by the project and the planned corridor improvements to be installed by Caltrans. Additionally, the applicant should coordinate the design of the frontage improvements on West Lindo Avenue with the City to determine if any right-of-way needs to be dedicated for the planned Class I pathway on West Lindo Avenue.

Finding – Pedestrian facilities serving the project site would be enhanced through the provision of sidewalks along the project frontages and the planned signalization of Nord Avenue/West Lindo Avenue. The proposed facilities are compliant with City policies related to pedestrian infrastructure.

Recommendation – The design of the project frontage on Nord Avenue should be coordinated with Caltrans so that sidewalks are provided along the entirety of the project frontage and the applicant is responsible for constructing the sections of sidewalk that would not be installed by Caltrans. The design of the frontage improvements on West Lindo Avenue should include consideration for the planned future installation of a shared use pathway as identified in the City's Draft ATP and right-of-way dedicated to the City for these improvements, if necessary.

Bicycle Facilities

Existing and Planned Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2020, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist on both Nord Avenue and West 8th Avenue. The existing bicycle facilities on Nord Avenue are planned to be expanded from the intersection with West Lindo Avenue to the western City limits. Additionally, an extension of the existing bike lanes on West 8th Avenue are planned between West Sacramento Avenue and Nord Avenue. Bicyclists ride on the roadway and/or on sidewalks along all other streets within the project study area. Table 4 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the City's Draft ATP.

Table 4 – Bicycle Facility Summary				
Status **Facility**	**Class**	**Length (miles)**	**Begin Point**	**End Point**
Existing				
Railroad Trail	I	1.90	West Lindo Ave	Rio Chico Way
Nord Ave	II	0.47	Arbor Dr	West 8th Ave
West 8th Ave	II	1.07	Nord Ave	Magnolia Ave
Planned				
Railroad Trail	I	1.70	West Lindo Ave	West City Limits
West Lindo Ave	I	1.84	Nord Ave	Esplanade
West 8th Ave	II	0.36	West Sacramento Ave	Nord Ave
West East Ave	II	1.39	Nord Ave	Esplanade
West Lindo Ave	II	0.28	Nord Ave	Moyer Way
Nord Ave	II	2.06	Muir Ave	West 8th Ave

Source: *City of Chico Draft Active Transportation Plan*, GHD, 2023

Bicyclist Safety

Collision records for the study area were reviewed to determine if there had been any bicyclist-involved crashes. During the five-year study period previously noted, there were no reported collisions involving a bicyclist at any of the study intersections.

Project Impacts on Bicycle Facilities

Existing bicycle facilities, including the Class II bike lanes on Nord Avenue and West 8th Avenue and the shared-use path along the railroad, together with shared use of minor streets provide adequate access for bicyclists. Connectivity would be further enhanced upon completion of planned bicycle improvement projects. Assuming that the design for the frontage improvements on West Lindo Avenue accommodates the planned future shared use pathway if determined to be necessary by City staff, the project would not include any components that would preclude the City or Caltrans from being able to implement these planned future improvements.

Bicycle Storage

According to *Chico Municipal Code,* Section 19.70; Parking Requirements the City requires multi-family housing projects to provide one bicycle storage space per unit. With 208 proposed apartment units, the project would need to provide at least 208 bicycle parking spaces. With a proposed supply of 212 bicycle spaces, the project would satisfy City requirements.

Finding – Existing and planned bicycle facilities would adequately serve the project.

Transit Facilities

Existing Transit Facilities

Butte Regional Transit (B-Line) provides fixed route bus service throughout Butte County including the City of Chico and Glenn Ride provides transit service within and between Glenn County and Chico. Transit stops for B-Line Route 3 and Glenn Ride are within a half mile of the project site. Route 3 runs between the Chico Transit

Center and the North Valley Plaza from 6:15 a.m. to 9:00 p.m. Monday through Friday and 8:50 a.m. to 7:00 p.m. on Saturdays with headways of one hour. Route 3 does not operate on Sundays. Glenn Ride provides service between the Chico Transit Center and the Chico Amtrak Station from 6:30 a.m. to 8:15 p.m. with headways of two hours on weekdays and from 8:00 a.m. to 7:30 p.m. with headways of four hours on Saturdays and holidays.

Bicycles can be carried on all B-Line buses. Bike rack space is on a first come, first served basis.

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

Impact on Transit Facilities

Existing transit stops are within an acceptable walking distance of the project site and the planned sidewalk improvements to be installed by Caltrans together with buildout of sidewalks along the project frontages would result in adequate connectivity to transit for project residents. Existing service is anticipated to have adequate capacity to accommodate project generated transit trips and the proposed pedestrian improvements would enhance transit access consistent with City policies.

Finding – Transit facilities serving the project site are adequate and would be improved with the planned pedestrian improvements that would be constructed by Caltrans or installed as part of the project's frontage improvements.

Significance Finding – The proposed project would not conflict with any plans or policies for transportation facilities assuming the design of the frontage improvements on West Lindo Avenue and Nord Avenue are coordinated with City and Caltrans staff in consideration of the planned Highway 32 corridor improvements and the future provision of a Class I pathway identified in the City's Draft ATP. The project would therefore have a less-than-significant impact.

Vehicle Miles Traveled (VMT)

The potential for the project to conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) was evaluated based the project's anticipated Vehicle Miles Traveled (VMT).

Background and Guidance

Senate Bill (SB) 743 established VMT as the metric to be applied for determining transportation impacts associated with development projects. Like many other jurisdictions in California, the City of Chico has not yet adopted a policy or thresholds of significance regarding VMT so the project-related VMT impacts were assessed based on guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, 2018 as well as guidance from the Butte County Association of Governments (BCAG) as presented in *BCAG SB 743 Implementation*, 2021. Both the OPR and BCAG guidance recommend a significance threshold for residential projects that is 15 or more percent below the existing citywide or regional residential VMT per capita. Projects with a VMT per capita greater than this threshold may have a significant transportation impact.

Project Impact

The BCAG travel demand model includes hundreds of traffic analysis zones (TAZs) within the region that contain VMT information. The project site is located within TAZ 415, which has a daily residential VMT per capita of 11.4. It is typical to assume that incoming development would generate similar travel patterns as the existing development in the TAZ; therefore, the proposed project would be expected to generate 11.4 vehicles miles traveled per day per capita.

Based on the regional model, the countywide average daily VMT per capita is 14.9. Applying OPR and BCAG guidance, a residential project generating a VMT that is 15 percent or more below this value, or 12.7 miles per capita per day or less, would have a less-than-significant VMT impact. The proposed project is expected to have a daily VMT per capita of 11.4, which is approximately 23 percent below the countywide average. Since this is more than 15 percent below the countywide average value, the project would have a less-than-significant transportation impact on VMT. This information is summarized in Table 5.

Table 5 – Vehicle Miles Traveled Analysis Summary

VMT Metric	Countywide Baseline VMT Rate	Significance Threshold	TAZ 463 VMT Rate	Resulting Significance
Daily VMT per Capita	14.9	12.7	11.4	Less Than Significant

Note: VMT Rate is measured in residential VMT/Capita

Significance Finding – Based on OPR guidance and information contained within the BCAG travel demand model, the project's impact on VMT would be considered less than significant.

Safety Issues

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance and need for turn lanes at the project driveway at West Lindo Avenue as well as the adequacy of stacking space in dedicated turn lanes at the study intersections to accommodate additional queuing due to adding project-generated trips. This section addresses the third transportation bullet on the CEQA checklist which is whether or not 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).

Site Access

The project site would be accessed from a new, gated driveway on West Lindo Avenue, about 380 feet north of the intersection with Nord Avenue. An emergency access only connection would be made to the existing terminus of Ruskin Street, which would be gated to restrict access to only emergency responders.

Sight Distance

The project access point on West Lindo Avenue would be an unsignalized urban driveway, therefore corner sight distance criterion would not be appliable; however, consideration was given to the availability of sight lines that would provide adequate stopping sight distance, which is considered the minimum sight distance needed for safe operation.

For the posted speed limit of 25 mph on West Lindo Avenue, the recommended minimum stopping sight distance is 150 feet. Based on a review of field conditions, sight lines extend more than 200 feet to and from each approach as the street is straight and flat adjacent to the project site. As a result, sight lines are adequate to accommodate all turns into and out of the project driveway. To preserve existing sight lines, any new signage, monuments, or other structures to be placed near the project entrance should be positioned outside of the vision triangles of a driver waiting on the driveway approach.

Finding – Sight lines at the project driveway would be adequate to accommodate all turns into and out of the project site.

Recommendation – To preserve existing sight lines, any new signage, monuments, or other structures to be placed near the project entrance should be positioned outside of the vision triangle of a driver waiting on the driveway.

Turn Lane Warrants

The need for a right or left-turn lane on West Lindo Avenue at the proposed project street was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as an update of the methodology developed by the Washington State Department of Transportation and published in the *Method For Prioritizing Intersection Improvements*, January 1997. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues.

Under Existing plus Project and Future plus Project volumes, neither a left-turn lane nor a right turn lane would be warranted on West Lindo Avenue during either of the peak periods evaluated. Copies of the left turn lane warrants analysis sheets are provided in Appendix B.

Finding – Neither a left nor a right-turn lane would be warranted at the project access point on West Lindo Avenue.

Traffic Signal Warrants

As requested by City staff a signal warrant analysis was performed to determine potential need for a traffic signal at the proposed intersection of West Lindo Avenue/Project driveway.

Chapter 4C of the *California Manual on Uniform Traffic Control Devices* (CA-MUTCD) provides guidance on when a traffic signal should be considered. There are nine different warrants, or criteria, presented, as follows:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour Volume
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network
- Warrant 9, Intersection Near a Grade Crossing

For the purposes of this study, Warrants 2 and 3 were used as an initial indication of traffic control needs. The use of these signal warrants is common practice for planning studies. Other warrants, which are more generally applicable to existing traffic issues, require collection of additional traffic volumes for the highest eight hours of the day, review of the collision history, and evaluation of the system surrounding the location.

Warrant 2 is met when an engineering study finds that, for each of any four hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these four hours.

Warrant 3, which is often the first warrant to be met, has a notice that this signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. Under the Peak Hour Warrant the need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:

A. If all three of the following conditions exist for the same one hour (any four consecutive 15-minute periods) of an average day:

    1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: four vehicle-hours for a one-lane approach; or five vehicle-hours for a two-lane approach, and
    2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes, and
    3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only)

for one hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

Based on the application of Warrants 2 and 3 a traffic signal is not warranted at the proposed intersection of West Lindo Avenue/Project driveway. The signal warrants are provided in Appendix C.

Queuing

The City of Chico does not prescribe thresholds of significance regarding queue lengths. However, an increase in queue length due to project traffic was considered a potentially significant impact if the increase would cause the queue to extend out of a dedicated turn lane into a through traffic lane, or the back of queue into a visually restricted area, such as a blind corner. If queues would already be expected to extend past a dedicated turn lane or into a visually restricted area without project traffic, the addition of project traffic was considered to constitute a potentially significant impact only if it would cause a new unacceptable conditions; in other words, if the queue were already beyond the turn lane and the project would cause it to stack into a visually restricted area, and that would not occur without the project, that would be considered an impact.

Signalized Intersections

Under each scenario, the projected 95th-percentile queues in dedicated left-turn lanes at the study intersections were determined using Synchro queueing reports. Summarized in Table 6 are the predicted queue lengths for these lanes. Copies of the queuing projections are contained in Appendix D. It should be noted that while Nord Avenue/West Lindo Avenue is currently unsignalized, Caltrans has plans to install a traffic signal so the intersection was evaluated as a signalized intersection under all scenarios, per direction from City staff.

Table 6 – Maximum Left-Turn Queues

Study Intersection Left Turn Lane	Available Storage	Maximum Queues							
		AM Peak Hour				PM Peak Hour			
		E	E+P	F	F+P	E	E+P	F	F+P
1. Nord Ave/W East Ave									
Eastbound	*300	**536**	**536**	**624**	**635**	**445**	**448**	**512**	**539**
Westbound	180	6	6	6	6	6	6	6	6
Northbound	75	6	6	6	6	0	0	0	0
Southbound	260	**424**	**431**	**501**	**502**	**449**	**468**	**514**	**569**
2. Nord Ave/W Lindo Ave-Glenwood Ave									
Eastbound	**150	21	28	25	31	23	39	27	43
Westbound	**180	16	16	18	18	18	18	21	21
3. Nord Ave/W 8th Ave									
Eastbound	260	184	184	202	202	93	93	108	108
Westbound	200	91	91	99	99	28	28	31	31
Southbound	200	95	95	105	105	128	128	140	140

Notes: Maximum Queue based on the 95th percentile queue reported from Synchro; all distances are measured in feet; E = existing conditions; E+P = existing plus project conditions; F = future conditions; F+P = future plus project conditions; **Bold** text = queue length exceeds available storage; * denotes turn lane is connected to a two-way left-turn lane so the effective storage is longer; ** left-turn lane length is proposed

At the intersection of Nord Avenue/East Avenue, the eastbound and southbound left-turn queues exceed storage capacity and would be expected to continue doing so without and with the project under all scenarios evaluated. However, the eastbound left-turn lane is connected to a TWLTL so this provides space for vehicles to queue without impacting through traffic. In consideration of this and because the project would not exacerbate queuing, the project's impact was considered less-than-significant.

In the southbound left turn lane, queuing currently exceeds available storage capacity without project trips and would continue to do so with the addition of project trips to existing and future volumes. Project trips would increase the queue by less than one vehicle length during the a.m. peak hour and by one to two vehicle lengths during the p.m. peak hour. While this is undesirable, the additional project trips would not create a new safety concern since queues already exceed storage capacity without project trips and adequate sight lines would remain available for motorists approaching the queue on southbound West East Avenue. Further, because there are two southbound travel lanes on West East Avenue and few through movements (five a.m. and two p.m.) on this approach, motorists turning left at the intersection are able to stack in the number one travel lane with minimal impact to operations. While queues would potentially extend into the upstream Kennedy Avenue intersection during the p.m. peak hour with the addition of project trips to existing volumes, this would only occur for a short time and the metering effect of the signal would provide opportunities for motorists turning from the Kennedy Avenue approach onto West East Avenue. Consideration was given to the need for KEEP CLEAR legends at the intersection, but due to the proximity of the railroad tracks it was determined that it would be more important in terms of safety for this space to be available for queueing if needed than to force motorists to queue on the north side of the intersection closer to the tracks. Queues are not expected to reach the railroad tracks under any of the scenarios evaluated so the project's impact was considered less-than-significant, though it is recommended that City and Caltrans staff continue to monitor operations as traffic volumes increase in the surrounding vicinity.

Project Driveway

The project driveway on West Lindo Avenue would be gated so consideration was given to the potential for queues to stack onto West Lindo Avenue. The highest concentration of inbound trips to the project site would occur during the weekday p.m. peak hour when 67 vehicles would arrive within a one-hour period, which translates to an average of one vehicle every 54 seconds. Using a conservative assumption that it would take 30 to 45 seconds for the gate to open and a vehicle to pass through, the proposed gate would have a service capacity of 80 to 120 vehicles per hour which is more than enough to accommodate the anticipated demand. Even if vehicles are not evenly spread across the peak hour and arrive at a rate higher than one vehicle every 54 seconds resulting in momentary queuing, the project street would have space for two to three vehicles to queue between the gate and West Lindo Avenue which should be adequate capacity to prevent any spill over onto West Lindo Avenue.

Finding – Queues would remain within existing and proposed left-turn storage capacity at all three study intersections except for the eastbound and southbound left turn lanes at Nord Avenue/West East Avenue. Eastbound left turn queues would be able to stack in the existing TWLTL on Nord Avenue and while the project would increase southbound left-turn queue by one to two vehicles during each peak hour, queues would not extend to the railroad tracks and adequate following sight distance would be available on southbound West East Avenue so the project would not create any new safety hazards. The proposed gated entrance is expected to have adequate stacking capacity to prevent a queue from spilling over onto West Lindo Avenue.

Significance Finding – The proposed project would have a less-than-significant impact on safety in that site access would function acceptably as proposed with adequate sight distance at the project entrance and project trips would not create any new queueing issues on surrounding streets.

Emergency Access

The final transportation bullet on the CEQA checklist requires an evaluation as to whether the project would result in inadequate emergency access or not.

Adequacy of Site Access

Based on Chico's General Plan, West Lindo Avenue along the project frontage is classified as an arterial street. According to Chico's *Standard Plans,* an arterial street must have no parking, a sidewalk width of at least five feet, parkway width of at least seven feet, eight-foot shoulders, and 12-foot travel lanes. As identified on the site plan, the proposed typical street section for the frontage improvements on West Lindo Avenue would satisfy these requirements. The project would also include a 20-foot-wide emergency access route that would connect to Ruskin Street. Assuming implementation of applicable design standards, site access and circulation is expected to function acceptably for emergency response vehicles.

Finding – The proposed frontage improvements are consistent with the City's requirements for arterial roadways and site access and circulation would function acceptably for emergency response vehicles with implementation of applicable design standards to the site layout.

Off-Site Impacts

Given the minimal effect that the project would be expected to have on traffic operation in the area, as detailed in the following chapter, the project would be expected to have a less-than-significant impact on emergency response. Further, as all roadway users must yield the right-of-way to emergency vehicles when using their sirens and lights, the added project-generated traffic would not appreciably affect emergency response times.

Finding –Traffic from the proposed development would not be expected to appreciably affect emergency response times.

Significance Finding – The proposed project's impact on emergency access would be considered less than significant.

Capacity Analysis

Intersection Level of Service Methodologies

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

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

It should be noted that while Nord Avenue/West Lindo Avenue currently has side-street stop controls, Caltrans has plans to install a traffic signal at this location and construction is expected to begin during the summer of 2024 so the intersection was evaluated as a signalized intersection under all scenarios including Existing Conditions, per direction from City staff. The design plans for the improvements also identify provision of a westbound right-turn lane so this geometry was used for the operational analysis.

The ranges of delay associated with the various levels of service are indicated in **Error! Reference source not found.**

Table 7 – Signalized Intersection Level of Service Criteria	
LOS A	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
LOS B	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
LOS C	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
LOS D	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
LOS E	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
LOS F	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

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

Traffic Operation Standards

City of Chico

In the Circulation Element of its General Plan, the City of Chico establishes requirements for intersection operation as follows:

> ***Policy CIRC-1.4 (Level of Service Standards)*** *– Until a Multimodal Level of Service (MMLOS) methodology is adopted by the City, maintain LOS D or better for roadways and intersections at the peak PM period, except as specified below:*
> - *LOS E is an acceptable threshold for City streets and intersections under the following circumstances:*
> - *Downtown streets within the boundaries identified in Figure DT-1 of the Downtown Element.*
> - *Arterials served by scheduled transit.*

- *Arterials not served by scheduled transit, if bicycle and pedestrian facilities are provided within or adjacent to the roadway.*
- *Utilize Caltrans LOS standards for Caltrans' facilities.*
- *There are no LOS standards for private roads.*

Caltrans

Although the study intersections and Nord Avenue (Highway 32) are under the jurisdiction of Caltrans, Caltrans does not have a standard of significance relative to operation as this is no longer a CEQA issue. The *Vehicle Miles Traveled-Focused Transportation Impact Study Guide* (TISG), published in May 2020, replaced the *Guide for the Preparation of Traffic Impact Studies*, 2002. As indicated in the TISG, the Department is transitioning away from requesting LOS or other vehicle operations analyses of land use projects and will instead focus on Vehicle Miles Traveled (VMT). Considering that Caltrans does not have standards of significance for Levels of Service, the City of Chico's standards were generally applied, though the following LOS analysis is being provided for informational purposes only.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday a.m. and p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data was collected on Tuesday October 24, 2023, during clear weather and while local schools were in session. The existing traffic volumes are shown in Figure 3.

Caltrans plans to signalize the intersection of Nord Avenue/West Lindo Avenue-Glenwood Avenue and as directed by City staff this intersection was analyzed as though it were currently signalized. A summary of the intersection Level of Service calculations is contained in Table 8, and copies of the LOS calculations for all evaluated scenarios are provided in Appendix E. It should be noted that although Nord Avenue/East Avenue operates at LOS E and is under the jurisdiction of Caltrans, this type of operation would be considered acceptable based on City standards since the corridor is served by scheduled transit.

Table 8 – Existing Peak Hour Intersection Levels of Service

Study Intersection ***Approach***	**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**
1. Nord Ave/W East Ave	74.9	E	60.1	E
WB and SB Right-Turn Overlap	66.6	E	56.3	E
2. Nord Ave/W Lindo Ave-Glenwood Ave*	9.9	A	10.0	B
3. Nord Ave/W 8th Ave	40.5	D	34.6	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; * with planned Caltrans improvements including signalization; WB = westbound; SB = southbound; Shaded cells = conditions with improvements

City staff requested that the intersection of Nord Avenue/West East Avenue be analyzed with right-turn overlaps for the westbound and southbound approaches as potential improvements. The project as proposed is not expected to have an adverse effect on traffic operations, but City staff requested this analysis to understand how operations may be improved. Though the right-turn overlaps would not achieve a higher service level, delay would decrease substantially during both peak periods with this phasing change. The City may wish to communicate with Caltrans on implementing these requested improvements.

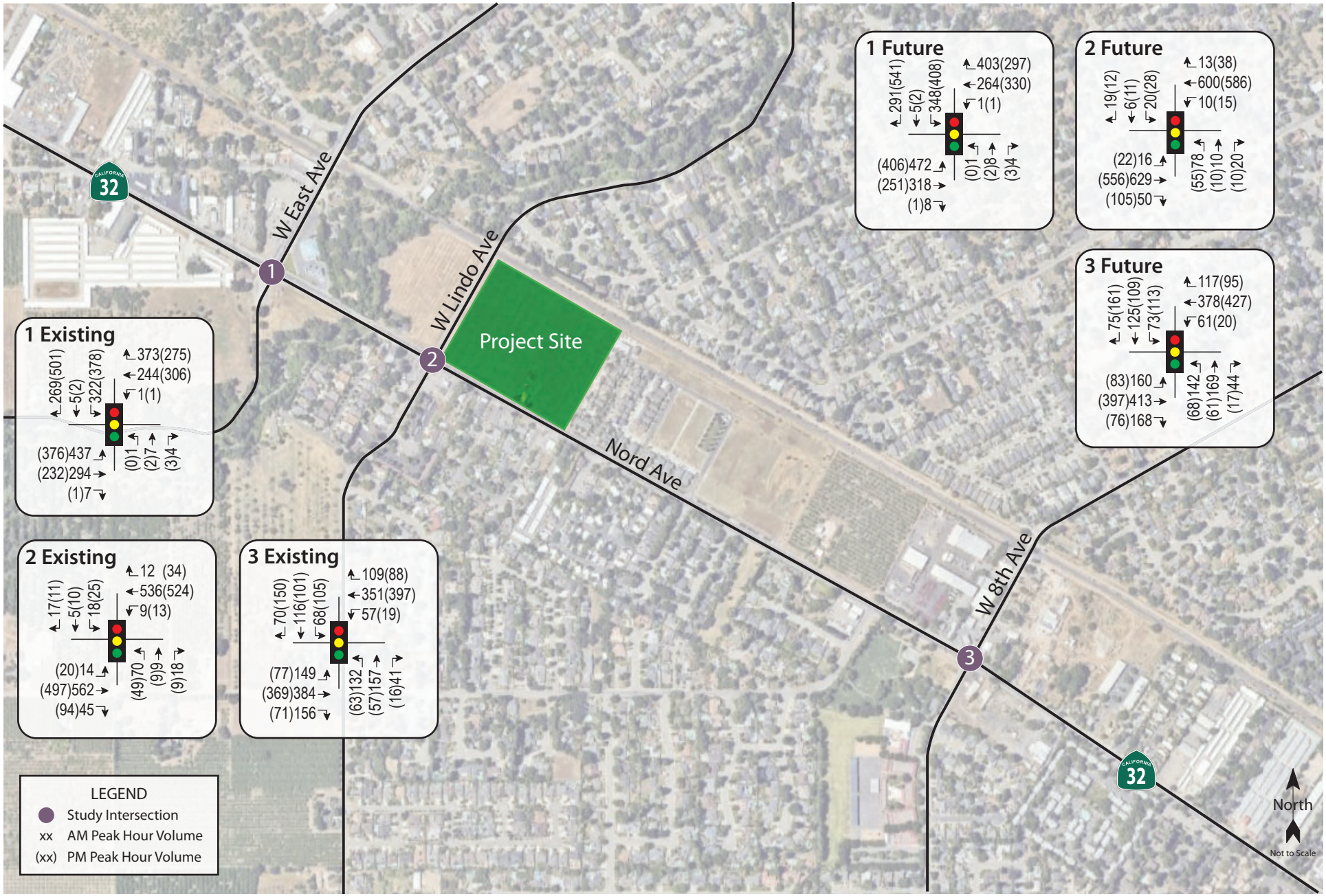

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Figure 3 – Existing and Future Traffic Volumes

W-Trans

Future Conditions

Future volumes that would be expected upon buildout of the City's General Plan were estimated using information contained within the General Plan Draft EIR. Traffic volumes on Nord Avenue are expected to increase by approximately 0.4 percent annually near the intersections with West 8th Avenue and West East Avenue and 0.6 percent annually near the intersection with West Lindo Avenue so for the purpose of calculating volumes for the horizon year of 2040 growth factors of 1.08 and 1.12 were applied to the existing turning movement counts for the respective intersections.

Under the anticipated future volumes, the study intersections are expected to experience deterioration in operation with Nord Avenue/East Avenue operating at LOS F during the a.m. peak hour. Future volumes are shown in Figure 3 and operating conditions are summarized in Table 9.

Table 9 – Future Peak Hour Intersection Levels of Service

Study Intersection *Approach*	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
1. Nord Ave/W East Ave	92.4	F	66.0	E
WB and SB Right-Turn Overlap	63.6	E	61.1	E
2. Nord Ave/W Lindo Ave-Glenwood Ave*	10.3	B	10.1	B
3. Nord Ave/W 8th Ave	46.8	D	34.8	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; * with planned Caltrans improvements including signalization; WB = westbound; SB = southbound; Shaded cells = conditions with improvements

Project Conditions

Existing plus Project Conditions

Upon the addition of project-related traffic to the existing volumes only the study intersection of Nord Avenue/West East Avenue would continue operating at the same Levels of Service as without project trips. Operation at Nord Avenue/West Lindo Avenue-Glenwood Avenue and Nord Avenue/West 8th Avenue is expected to experience changes in service levels, but remain at acceptable levels. Since Caltrans does not have an operational standard and the City of Chico considers LOS E to be acceptable for corridors with scheduled transit service, the project's effect on operations is considered acceptable. These results are summarized in Table 10 and Project traffic volumes are shown in Figure 4.

Table 10 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Nord Ave/W East Ave	74.9	E	60.1	E	77.5	E	63.7	E
WB and SB Right-Turn Overlap	66.6	E	56.3	E	66.8	E	58.1	E
2. Nord Ave/W Lindo Ave-Glenwood Ave*	9.9	A	10.0	B	10.3	B	10.8	B
3. Nord Ave/W 8th Ave	40.5	D	34.6	C	43.3	D	40.6	D

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; * with planned Caltrans improvements including signalization; WB = westbound; SB = southbound; Shaded cells = conditions with improvements

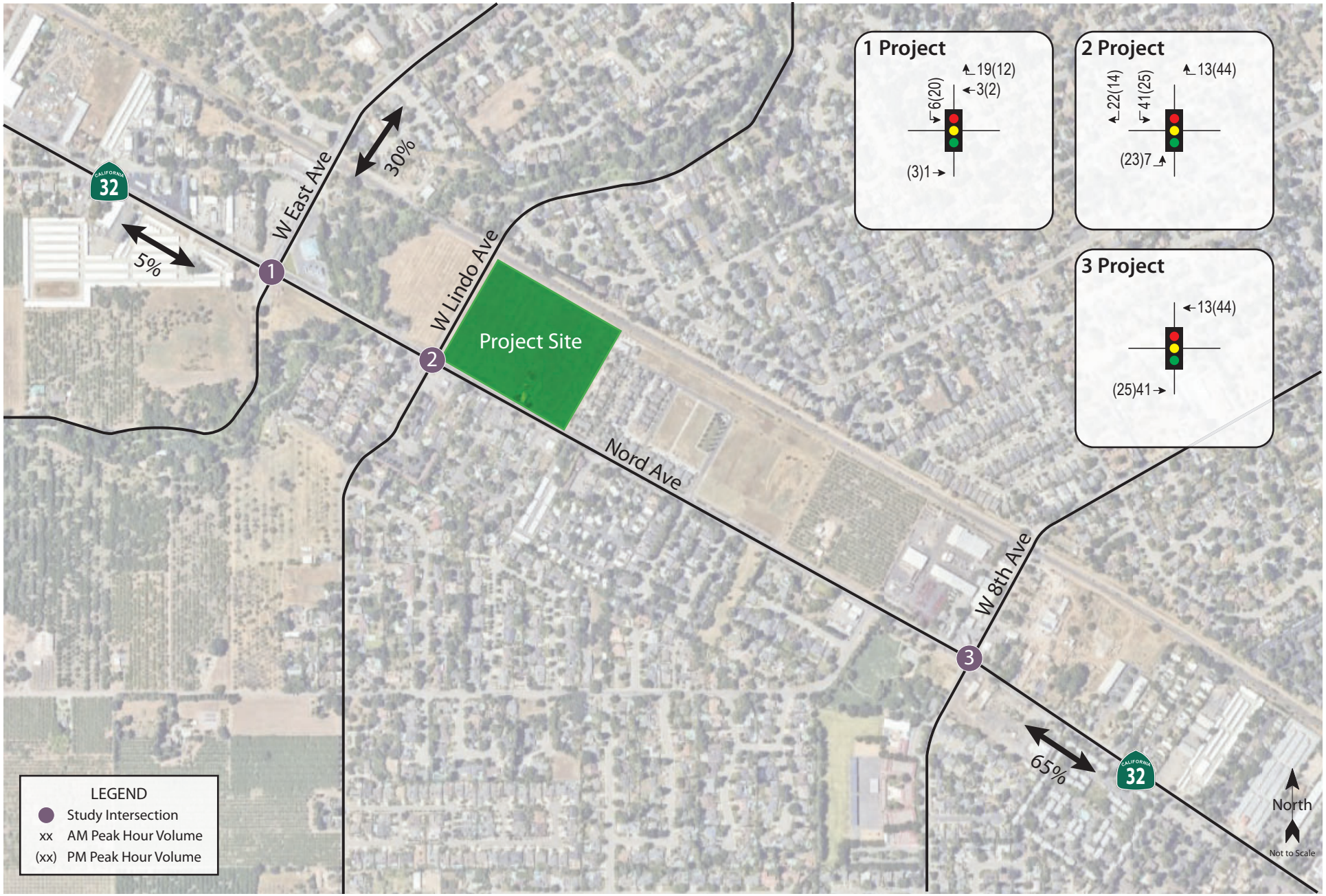

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Figure 4 – Project Traffic Volumes and Trip Distribution

W-Trans

Finding – Traffic from the proposed project would have an acceptable effect on the operation of the study intersections.

Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated future volumes the study intersections are expected to continue operating at the same Levels of Service as without project traffic, except for the intersection of Nord Avenue/West 8th Avenue which is expected to decrease from LOS C to LOS D during the p.m. peak hour. The addition of the westbound and southbound right-turn overlaps would improve operation from LOS F to LOS E during the a.m. peak hour. The project's long-term effect on operations is considered acceptable with or without the overlap. The Future plus Project operating conditions are summarized in Table 11.

Table 11 – Future and Future plus Project Peak Hour Intersection Levels of Service

	Study Intersection ***Approach***	**Future Conditions**				**Future plus Project**			
		AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	Nord Ave/W. East Ave	92.4	F	66.0	E	97.0	F	69.5	E
	WB and SB Right-Turn Overlap	63.6	E	61.1	E	67.3	E	59.0	E
2.	Nord Ave/W. Lindo Ave-Glenwood Ave*	10.3	B	10.1	B	10.6	B	10.8	B
3.	Nord Ave/W. 8th Ave	46.8	D	34.8	C	48.3	D	38.4	D

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; * with planned Caltrans improvements including signalization; WB = westbound; SB = southbound; Shaded cells = conditions with recommended improvements

The City and Caltrans may wish to consider capacity improvements to the intersection of Nord Avenue/West East Avenue to address the high delays expected.

Finding – The project's long-term effect on operations is considered acceptable.

Parking

Parking supply requirements for the project were determined based on the provisions of the *Chico Municipal Code,* Section 19.70; Parking Requirements. The project is located in a Corridor Opportunity Site and this Code requires the provision of one vehicle parking space for each one-bedroom apartment and1.5 spaces per two or more-bedroom apartment in a multifamily housing development with one bicycle parking space required per unit regardless of the number of bedrooms; no guest parking is required. The project as proposed would include 56 one-bedroom and 152 two or more-bedroom units, which would require a total of 284 vehicle parking spaces and 208 bicycle parking spaces. The project would provide 368 vehicle parking spaces and 212 bicycle parking spaces, which is compliant with City policy.

Finding – With a proposed supply of 368 vehicle parking spaces and 212 bicycle parking spaces, the project would satisfy the City's parking requirements.

Conclusions and Recommendations

Conclusions

- The proposed project would be expected to generate an average of 1,402 trips per day, including 83 during the morning peak hour and 106 during the evening peak hour.
- The project is consistent with City policies relative to pedestrian, bicycle, and transit facilities. Frontage improvements would include installation of sidewalks and half-street frontage improvements consistent with City policies. The project's impact on these modes is therefore less than significant.
- Based on OPR guidance and information contained within the BCAG travel demand model, the project's impact on VMT would be considered less than significant.
- The study intersections all had calculated collision rates well below the statewide average for similar facilities.
- Existing sight lines are adequate to accommodate all turns into and out of the proposed project access on West Lindo Avenue.
- Neither a left-turn lane, nor a right turn lane would be warranted on West Lindo Avenue at the project driveway.
- Queues would remain within existing and proposed left-turn storage at all three study intersections except for the eastbound and southbound left-turn lanes at Nord Avenue/West East Avenue. Eastbound left-turn queues could extend into the existing TWLTL on Nord Avenue and while the project would increase southbound left-turn queues by one to two vehicles during each peak hour, queues would not extend to the railroad tracks and adequate following sight distance would be available on southbound West East Avenue so the project would not create any new safety hazards. The design of the gated entrance on West Lindo Avenue is anticipated to have sufficient storage between the gate and West Lindo Avenue to accommodate queuing without spillover onto West Lindo Avenue.
- A traffic signal is not warranted at the proposed intersection of the project driveway and West Lindo Avenue.
- The proposed frontage improvements for West Lindo Avenue are consistent with the City's requirements for arterial roadways and site access and circulation would function acceptably for emergency response vehicles with implementation of applicable design standards to the site layout. The proposed project would have a less-than-significant impact on emergency access and response times.
- Upon the addition of project trips to the existing traffic volumes, Nord Avenue/West East Avenue would operate at LOS E, Nord Avenue/West Lindo Avenue would operate at LOS B with signalization, and Nord Avenue/West 8th Avenue would operate at LOS D. Caltrans does not have a policy related to Levels of Service, though these service levels would meet City standards since the Nord Avenue corridor is served by scheduled transit. The project's effect on operations is therefore considered acceptable.
- Upon the addition of project trips to the anticipated future volumes and with signalization of Nord Avenue/West Lindo Avenue, the study intersections are expected to continue operating at the same Levels of Service as without project trips. As a result, the project's long-term effect on operations is considered acceptable, though capacity improvements to the intersection of Nord Avenue/East Avenue would be needed to address the high delays and LOS F operations expected under buildout volumes without the project.

- The project as proposed would provide adequate vehicle and bicycle parking on-site.

Recommendations

- The design of the frontage improvements on West Lindo Avenue should include consideration for the planned future installation of a shared use pathway as identified in the City's Draft ATP, and right-of-way dedicated to the City for these improvements, if determined to be necessary by staff. The design of the project frontage on Nord Avenue should be coordinated with Caltrans in consideration of the planned Highway 32 corridor improvements to begin construction during the summer of 2024.

- To preserve existing sight lines, any new signage, monuments, or other structures to be placed near the project entrance should be positioned outside of the vision triangle of a driver waiting on the minor street.

- Adding right-turn overlaps at the intersection of Nord Avenue/West East Avenue would improve the service levels at the intersection from LOS F to LOS E during the morning peak hour under build out conditions. The City of Chico may wish to work with Caltrans to consider implementing this improvement.

Study Participants and References

Study Participants

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Editing/Formatting	Jessica Bender, Hannah Yung-Boxdell
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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

2240 Nord Avenue Apartments Project

Intersection # 1: Nord Avenue & West East Avenue
Date of Count: Saturday, January 0, 1900

Number of Collisions: 2
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 20800
Start Date: January 1, 2018
End Date: December 31, 2022
Number of Years: 5

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

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{2 \times 1{,}000{,}000}{20{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.05 c/mve**	**0.0%**	**0.0%**
Statewide Average*	**0.33 c/mve**	**0.6%**	**47.7%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2020 Collision Data on California State Highways, Caltrans

Intersection # 2: Nord Avenue & West Lindo Avenue
Date of Count: Saturday, January 0, 1900

Number of Collisions: 2
Number of Injuries: 2
Number of Fatalities: 0
Average Daily Traffic (ADT): 16400
Start Date: January 1, 2018
End Date: December 31, 2022
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{2 \times 1{,}000{,}000}{16{,}400 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.07 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.20 c/mve**	**1.1%**	**47.5%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2020 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

2240 Nord Avenue Apartments Project

Intersection # 3: Nord Avenue & West 8th Avenue
Date of Count: Saturday, January 0, 1900

Number of Collisions: 3
Number of Injuries: 1
Number of Fatalities: 0
Average Daily Traffic (ADT): 22400
Start Date: January 1, 2018
End Date: December 31, 2022
Number of Years: 5

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

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{3 \times 1{,}000{,}000}{22{,}400 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.07 c/mve**	**0.0%**	**33.3%**
Statewide Average*	**0.33 c/mve**	**0.6%**	**47.7%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2020 Collision Data on California State Highways, Caltrans

Appendix B

Turn Lane Warrants

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Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: W. Lindo Ave/Proj. Driveway
Study Scenario: Future + Project (AM Peak)

Direction of Analysis Street: North/South
Cross Street Intersects: From the East

W Lindo Ave

Northbound Volumes (veh/hr)

Through Volume = 39
Right Turn Volume = 20

Northbound Speed Limit: 25 mph
Northbound Configuration: 2 Lanes - Undivided

Project Driveway

W Lindo Ave

Southbound Volumes (veh/hr)

45 = Through Volume
0 = Left Turn Volume

Southbound Speed Limit: 25 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	900.1
Advancing Volume	Va =	59
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Northbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	700
Advancing Volume	Va =	59
If AV<Va then warrant is met		No

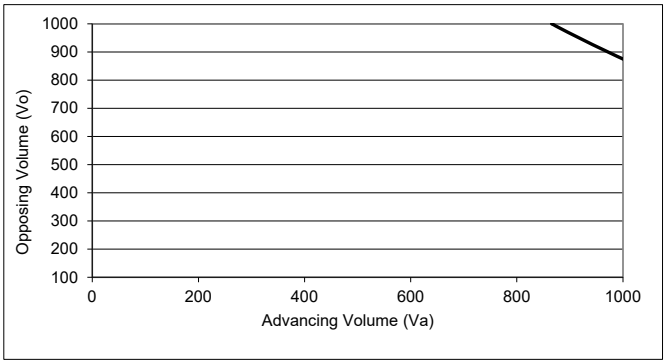
Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2616 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: W. Lindo Ave/Proj. Driveway
Study Scenario: Future + Project (PM Peak)

Direction of Analysis Street: North/South
Cross Street Intersects: From the East

W Lindo Ave

Northbound Volumes (veh/hr)

Through Volume = 70
Right Turn Volume = 67

Northbound Speed Limit: 25 mph
Northbound Configuration: 2 Lanes - Undivided

Project Driveway

W Lindo Ave

Southbound Volumes (veh/hr)

51 = Through Volume
0 = Left Turn Volume

Southbound Speed Limit: 25 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	547.5
Advancing Volume	Va =	137
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Northbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	230
Advancing Volume	Va =	137
If AV<Va then warrant is met		No

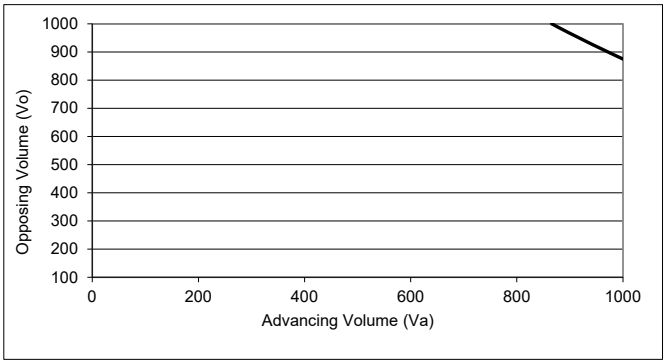
Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2525 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Appendix C

Traffic Signal Warrants

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Warrant 2: Four-Hour Vehicular Volume

West Lindo Avenue & Project Street

City of Chico

Project Name: 2240 Nord Avenue Apartments TIS

Intersection: 1

Scenario: 0

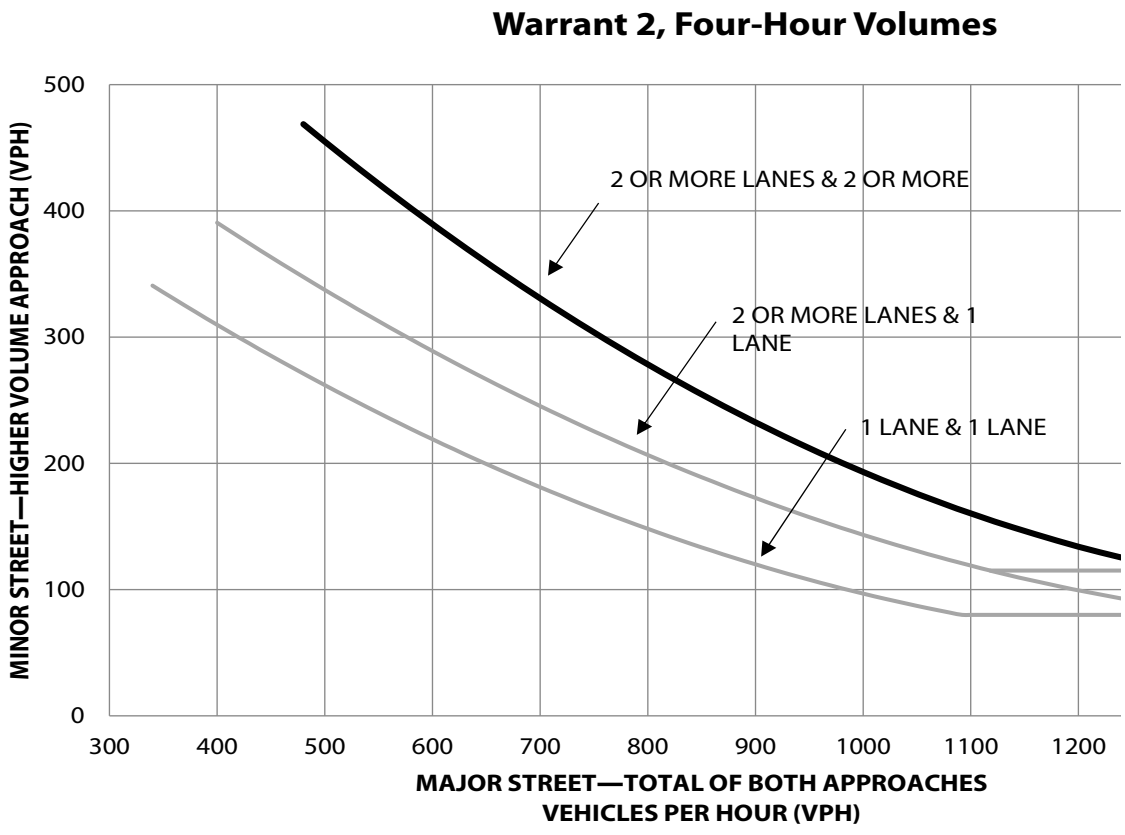
Date of Count: 1/0/1900

	Major Street	Minor Street
Street Name:	West Lindo Avenue	Project Street
Direction:	N-S	E-W
Number of Lanes:	2	2
Approach Speed:	25	25

Community with population < 10,000? No

WARRANT MET? **No**

Hour	Both Approaches Major Street	Highest Approach Minor Street
1	—	—
2	—	—
3	—	—
4	—	—



Warrant 3: Peak-Hour Volumes and Delay

West Lindo Avenue & Project Street
City of Chico

Project Name: 2240 Nord Avenue Apartments TIS

Intersection: 1

	Major Street	Minor Street
Street Name	West Lindo Avenue	Project Street
Direction	N-S	E-W
Number of Lanes	2	2
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: Saturday, January 0, 1900

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.16 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 63 vph

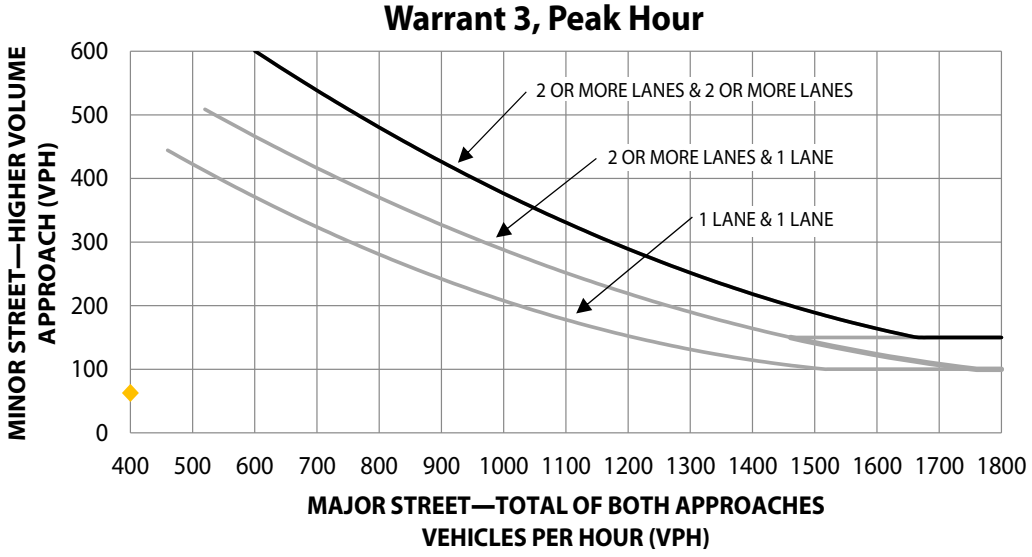
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 159 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

West Lindo Avenue & Project Street
City of Chico

Project Name: 2240 Nord Avenue Apartments TIS

Intersection: 1

	Major Street	Minor Street
Street Name	West Lindo Avenue	Project Street
Direction	N-S	E-W
Number of Lanes	2	2
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: Saturday, January 0, 1900

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.11 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 39 vph

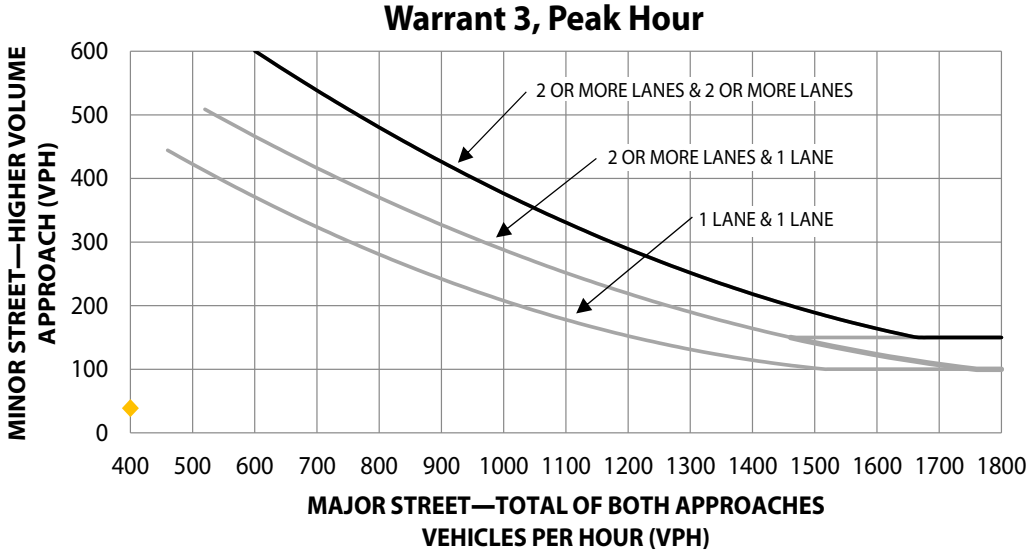
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 212 vph

Condition B — Not Met

The plotted point falls above the curve



Appendix D

Intersection Queuing Calculations

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Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	491	330	8	1	274	419	1	12	362	6	302
v/c Ratio	1.05	0.38	0.00	0.01	0.85	0.46	0.01	0.03	1.04	0.00	0.24
Control Delay (s/veh)	95.0	19.8	0.0	46.0	64.4	3.7	46.0	28.0	99.6	20.0	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	95.0	19.8	0.0	46.0	64.4	3.7	46.0	28.0	99.6	20.0	1.2
Queue Length 50th (ft)	~348	127	0	1	170	0	1	4	~253	2	0
Queue Length 95th (ft)	#536	229	0	6	#295	53	6	20	#424	12	28
Internal Link Dist (ft)		1089			965			496		628	
Turn Bay Length (ft)	300		175	180		285	75		260		
Base Capacity (vph)	464	859	819	89	338	901	89	333	348	763	1221
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.38	0.01	0.01	0.81	0.47	0.01	0.04	1.04	0.01	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	16	682	10	602	13	109	45
v/c Ratio	0.06	0.72	0.04	0.63	0.01	0.35	0.13
Control Delay (s/veh)	22.1	14.4	22.0	11.7	0.0	17.6	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.1	14.4	22.0	11.7	0.0	17.6	12.7
Queue Length 50th (ft)	3	84	2	70	0	16	4
Queue Length 95th (ft)	21	#336	16	259	0	66	30
Internal Link Dist (ft)		965		3391		395	811
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	238	1387	238	1400	1215	674	725
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.49	0.04	0.43	0.01	0.16	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	173	628	66	535	153	231	79	216
v/c Ratio	0.77	0.84	0.59	0.91	0.75	0.41	0.58	0.49
Control Delay (s/veh)	62.4	36.3	64.0	50.9	62.4	27.7	58.4	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.4	36.3	64.0	50.9	62.4	27.7	58.4	29.9
Queue Length 50th (ft)	97	311	37	277	85	103	44	92
Queue Length 95th (ft)	#184	#475	#91	#432	#167	163	#95	152
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	233	742	111	621	213	552	140	437
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.85	0.59	0.86	0.72	0.42	0.56	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	396	244	1	1	322	289	5	398	2	527
v/c Ratio	0.99	0.30	0.00	0.01	0.96	0.33	0.01	1.00	0.00	0.42
Control Delay (s/veh)	84.0	20.8	0.0	46.0	82.4	3.1	25.6	85.3	14.5	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.0	20.8	0.0	46.0	82.4	3.1	25.6	85.3	14.5	2.9
Queue Length 50th (ft)	253	95	0	1	206	0	1	255	1	35
Queue Length 95th (ft)	#445	180	0	6	#375	45	11	#449	5	70
Internal Link Dist (ft)		1089			965		496		628	
Turn Bay Length (ft)	300		175	180		285		260		
Base Capacity (vph)	398	803	775	88	335	871	324	398	856	1241
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.30	0.00	0.01	0.96	0.33	0.02	1.00	0.00	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	21	629	14	557	36	72	50
v/c Ratio	0.08	0.68	0.05	0.59	0.04	0.25	0.16
Control Delay (s/veh)	19.1	13.0	18.8	10.6	0.0	15.7	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	19.1	13.0	18.8	10.6	0.0	15.7	13.7
Queue Length 50th (ft)	4	64	2	56	0	10	6
Queue Length 95th (ft)	23	#308	18	219	0	45	32
Internal Link Dist (ft)		965		3391		395	752
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	255	1241	255	1265	1110	721	761
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.51	0.05	0.44	0.03	0.10	0.07

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	463	20	511	66	77	111	264
v/c Ratio	0.55	0.63	0.14	0.89	0.47	0.13	0.70	0.41
Control Delay (s/veh)	48.1	22.9	33.1	44.4	43.9	15.7	59.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.1	22.9	33.1	44.4	43.9	15.7	59.0	13.8
Queue Length 50th (ft)	35	140	8	208	28	19	48	50
Queue Length 95th (ft)	#93	#337	28	#392	#75	48	#128	112
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	146	744	137	588	140	590	157	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.62	0.15	0.87	0.47	0.13	0.71	0.42

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	530	357	9	1	297	453	1	13	391	6	327
v/c Ratio	0.98	0.39	0.01	0.01	0.98	0.48	0.01	0.04	1.00	0.00	0.26
Control Delay (s/veh)	77.3	21.7	0.0	56.0	98.2	3.9	56.0	34.6	93.2	23.6	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	77.3	21.7	0.0	56.0	98.2	3.9	56.0	34.6	93.2	23.6	1.4
Queue Length 50th (ft)	407	164	0	1	232	0	1	6	~305	3	6
Queue Length 95th (ft)	#624	274	0	7	#404	58	7	24	#501	13	35
Internal Link Dist (ft)		1089			965			496		628	
Turn Bay Length (ft)	300		175	180		285	75		260		
Base Capacity (vph)	538	909	842	73	302	927	73	292	390	754	1256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.39	0.01	0.01	0.98	0.49	0.01	0.04	1.00	0.01	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	18	763	11	674	15	121	50
v/c Ratio	0.08	0.76	0.05	0.66	0.01	0.40	0.15
Control Delay (s/veh)	25.5	15.7	25.3	12.3	0.0	20.8	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	25.5	15.7	25.3	12.3	0.0	20.8	14.0
Queue Length 50th (ft)	4	109	3	90	0	22	6
Queue Length 95th (ft)	25	#450	18	319	0	80	34
Internal Link Dist (ft)		965		3391		395	752
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	213	1428	213	1442	1246	603	654
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.53	0.05	0.47	0.01	0.20	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	675	71	576	165	248	85	232
v/c Ratio	0.83	0.89	0.65	0.96	0.80	0.45	0.63	0.54
Control Delay (s/veh)	69.1	41.2	69.7	59.1	68.8	28.8	62.7	31.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.1	41.2	69.7	59.1	68.8	28.8	62.7	31.7
Queue Length 50th (ft)	105	350	40	310	93	112	48	101
Queue Length 95th (ft)	#202	#534	#99	#485	#184	175	#105	164
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	228	754	109	607	208	541	136	428
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.90	0.65	0.95	0.79	0.46	0.63	0.54

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	427	264	1	1	347	313	5	429	2	569
v/c Ratio	1.00	0.31	0.00	0.01	1.00	0.34	0.01	1.00	0.00	0.46
Control Delay (s/veh)	88.6	21.5	0.0	51.0	94.0	3.0	29.2	87.8	16.5	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	88.6	21.5	0.0	51.0	94.0	3.0	29.2	87.8	16.5	3.8
Queue Length 50th (ft)	~307	112	0	1	247	0	1	~307	1	56
Queue Length 95th (ft)	#512	203	0	6	#437	47	12	#514	5	105
Internal Link Dist (ft)		1089			965		496		628	
Turn Bay Length (ft)	300		175	180		285		260		
Base Capacity (vph)	423	836	792	80	347	907	290	426	841	1235
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.32	0.00	0.01	1.00	0.35	0.02	1.01	0.00	0.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	23	703	16	623	40	81	55
v/c Ratio	0.09	0.72	0.06	0.62	0.04	0.28	0.18
Control Delay (s/veh)	22.2	13.7	21.9	11.0	0.2	18.0	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.2	13.7	21.9	11.0	0.2	18.0	15.5
Queue Length 50th (ft)	4	81	3	68	0	12	7
Queue Length 95th (ft)	27	#371	21	262	2	54	38
Internal Link Dist (ft)		965		3391		395	752
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	233	1358	233	1387	1204	656	693
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.52	0.07	0.45	0.03	0.12	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	498	21	549	72	82	119	284
v/c Ratio	0.63	0.71	0.16	0.91	0.50	0.15	0.73	0.45
Control Delay (s/veh)	57.4	26.6	36.4	46.8	46.2	17.9	62.4	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	57.4	26.6	36.4	46.8	46.2	17.9	62.4	17.1
Queue Length 50th (ft)	40	159	9	236	33	22	55	69
Queue Length 95th (ft)	#108	#361	31	#425	#81	55	#140	142
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	136	739	124	634	147	532	161	628
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.67	0.17	0.87	0.49	0.15	0.74	0.45

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	491	331	8	1	278	440	1	12	369	6	302
v/c Ratio	1.05	0.38	0.00	0.01	0.86	0.47	0.01	0.03	1.04	0.00	0.24
Control Delay (s/veh)	95.3	19.8	0.0	46.0	65.6	3.7	46.0	28.2	100.6	20.0	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	95.3	19.8	0.0	46.0	65.6	3.7	46.0	28.2	100.6	20.0	1.2
Queue Length 50th (ft)	~348	127	0	1	173	0	1	4	~258	2	0
Queue Length 95th (ft)	#536	230	0	6	#302	53	6	20	#431	12	28
Internal Link Dist (ft)		1089			965			496		628	
Turn Bay Length (ft)	300		175	180		285	75		260		
Base Capacity (vph)	464	860	819	89	338	918	89	328	353	762	1220
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.38	0.01	0.01	0.82	0.48	0.01	0.04	1.05	0.01	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	24	682	10	602	28	109	116
v/c Ratio	0.10	0.72	0.04	0.63	0.03	0.33	0.33
Control Delay (s/veh)	22.8	14.9	22.4	12.0	0.0	17.0	14.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.8	14.9	22.4	12.0	0.0	17.0	14.1
Queue Length 50th (ft)	5	85	2	71	0	16	12
Queue Length 95th (ft)	28	#369	16	264	0	65	59
Internal Link Dist (ft)		965		3391		395	752
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	236	1374	236	1388	1205	690	699
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.50	0.04	0.43	0.02	0.16	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	173	675	66	550	153	231	79	216
v/c Ratio	0.78	0.90	0.59	0.93	0.75	0.42	0.58	0.49
Control Delay (s/veh)	62.8	42.9	64.2	53.7	62.7	27.8	58.7	30.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	62.8	42.9	64.2	53.7	62.7	27.8	58.7	30.1
Queue Length 50th (ft)	97	351	37	289	85	103	44	92
Queue Length 95th (ft)	#184	#535	#91	#452	#167	163	#95	152
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	232	744	111	617	212	548	139	435
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.91	0.59	0.89	0.72	0.42	0.57	0.50

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	396	247	1	1	324	302	5	419	2	527
v/c Ratio	1.00	0.30	0.00	0.01	0.96	0.33	0.01	1.00	0.00	0.42
Control Delay (s/veh)	86.8	21.0	0.0	46.0	83.7	3.0	26.0	86.1	14.5	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	86.8	21.0	0.0	46.0	83.7	3.0	26.0	86.1	14.5	2.9
Queue Length 50th (ft)	~255	97	0	1	207	0	1	~272	1	36
Queue Length 95th (ft)	#448	183	0	6	#379	45	11	#468	5	70
Internal Link Dist (ft)		1089			965		496		628	
Turn Bay Length (ft)	300		175	180		285		260		
Base Capacity (vph)	394	799	772	88	335	891	310	415	860	1240
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.31	0.00	0.01	0.97	0.34	0.02	1.01	0.00	0.43

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	46	629	14	604	36	72	91
v/c Ratio	0.19	0.65	0.05	0.66	0.04	0.26	0.30
Control Delay (s/veh)	22.3	12.3	21.3	14.0	0.0	17.6	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	22.3	12.3	21.3	14.0	0.0	17.6	15.9
Queue Length 50th (ft)	9	67	3	66	0	11	12
Queue Length 95th (ft)	39	#312	18	#260	0	45	49
Internal Link Dist (ft)		965		3391		395	752
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	240	1234	240	1188	1049	655	695
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.51	0.06	0.51	0.03	0.11	0.13

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	81	490	20	557	66	77	111	264
v/c Ratio	0.56	0.66	0.14	0.95	0.47	0.13	0.71	0.42
Control Delay (s/veh)	48.7	23.9	33.2	54.8	44.2	15.7	60.0	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	48.7	23.9	33.2	54.8	44.2	15.7	60.0	13.8
Queue Length 50th (ft)	35	152	8	~246	28	19	48	50
Queue Length 95th (ft)	#93	#367	28	#442	#75	48	#128	112
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	144	738	136	582	138	583	155	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.66	0.15	0.96	0.48	0.13	0.72	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	530	358	9	1	300	474	1	13	398	6	327
v/c Ratio	1.01	0.40	0.01	0.01	0.99	0.50	0.01	0.04	0.98	0.00	0.26
Control Delay (s/veh)	85.0	22.4	0.0	56.0	100.7	4.4	56.0	34.6	87.1	23.0	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	85.0	22.4	0.0	56.0	100.7	4.4	56.0	34.6	87.1	23.0	1.4
Queue Length 50th (ft)	~420	168	0	1	235	8	1	6	309	3	6
Queue Length 95th (ft)	#635	280	0	7	#410	68	7	24	#502	13	36
Internal Link Dist (ft)		1089			965			496		628	
Turn Bay Length (ft)	300		175	180		285	75		260		
Base Capacity (vph)	523	894	830	73	302	939	73	292	405	770	1255
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.40	0.01	0.01	0.99	0.50	0.01	0.04	0.98	0.01	0.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	26	763	11	674	29	121	122
v/c Ratio	0.12	0.73	0.05	0.68	0.03	0.40	0.37
Control Delay (s/veh)	27.6	14.8	26.9	14.1	0.0	22.0	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	27.6	14.8	26.9	14.1	0.0	22.0	17.6
Queue Length 50th (ft)	6	108	3	89	0	23	17
Queue Length 95th (ft)	31	#449	18	318	0	78	67
Internal Link Dist (ft)		965		3391		395	571
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	203	1390	203	1353	1176	625	649
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.55	0.05	0.50	0.02	0.19	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	186	690	71	591	165	248	85	232
v/c Ratio	0.83	0.91	0.65	0.97	0.81	0.46	0.63	0.54
Control Delay (s/veh)	69.7	43.2	70.1	62.4	69.2	28.9	63.2	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	69.7	43.2	70.1	62.4	69.2	28.9	63.2	31.8
Queue Length 50th (ft)	105	363	40	322	93	112	48	101
Queue Length 95th (ft)	#202	#553	#99	#504	#184	175	#105	164
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	227	758	108	604	207	538	136	426
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.91	0.66	0.98	0.80	0.46	0.63	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
1: Nord Ave & W East Ave

01/30/2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	427	267	1	1	349	325	5	451	2	569
v/c Ratio	0.98	0.31	0.00	0.01	1.00	0.35	0.01	1.00	0.00	0.45
Control Delay (s/veh)	84.2	22.8	0.0	56.0	97.3	3.0	32.2	88.6	18.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	84.2	22.8	0.0	56.0	97.3	3.0	32.2	88.6	18.0	4.1
Queue Length 50th (ft)	330	125	0	1	273	0	1	~352	1	64
Queue Length 95th (ft)	#539	217	0	7	#468	48	13	#569	6	118
Internal Link Dist (ft)		1089			965		496		628	
Turn Bay Length (ft)	300		175	180		285		260		
Base Capacity (vph)	435	847	794	73	349	927	277	449	846	1239
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.32	0.00	0.01	1.00	0.35	0.02	1.00	0.00	0.46

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Nord Ave & W Lindo Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	48	703	16	623	87	81	96
v/c Ratio	0.21	0.69	0.07	0.64	0.10	0.29	0.33
Control Delay (s/veh)	24.8	13.1	23.5	12.7	2.1	19.2	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	24.8	13.1	23.5	12.7	2.1	19.2	17.5
Queue Length 50th (ft)	10	85	3	72	0	13	13
Queue Length 95th (ft)	43	#374	20	264	15	53	55
Internal Link Dist (ft)		965		3391		395	580
Turn Bay Length (ft)	150		180		150		
Base Capacity (vph)	221	1316	221	1279	1119	674	672
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.53	0.07	0.49	0.08	0.12	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Nord Ave & W 8th Ave

01/30/2024

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	524	21	596	72	82	119	284
v/c Ratio	0.65	0.72	0.17	0.96	0.51	0.15	0.75	0.46
Control Delay (s/veh)	59.0	27.2	36.6	54.3	46.9	17.9	64.6	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	59.0	27.2	36.6	54.3	46.9	17.9	64.6	17.2
Queue Length 50th (ft)	40	171	9	267	33	22	55	69
Queue Length 95th (ft)	#108	#392	31	#479	#81	55	#140	142
Internal Link Dist (ft)		3391		1288		345		661
Turn Bay Length (ft)	260		200				110	
Base Capacity (vph)	133	725	122	620	143	520	158	612
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.72	0.17	0.96	0.50	0.16	0.75	0.46

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Appendix E

Intersection Level of Service Calculations

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HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	437	294	7	1	244	373	1	7	4	322	5	269
Future Volume (veh/h)	437	294	7	1	244	373	1	7	4	322	5	269
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	491	330	7	1	274	250	1	8	1	362	6	198
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	465	815	691	2	329	279	2	303	38	349	712	603
Arrive On Green	0.26	0.44	0.44	0.00	0.18	0.18	0.00	0.19	0.19	0.20	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1630	204	1781	1870	1585
Grp Volume(v), veh/h	491	330	7	1	274	250	1	0	9	362	6	198
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1834	1781	1870	1585
Q Serve(g_s), s	26.0	12.0	0.2	0.1	14.1	15.4	0.1	0.0	0.4	19.5	0.2	8.8
Cycle Q Clear(g_c), s	26.0	12.0	0.2	0.1	14.1	15.4	0.1	0.0	0.4	19.5	0.2	8.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	465	815	691	2	329	279	2	0	341	349	712	603
V/C Ratio(X)	1.06	0.40	0.01	0.41	0.83	0.90	0.41	0.00	0.03	1.04	0.01	0.33
Avail Cap(c_a), veh/h	465	815	691	89	338	287	89	0	341	349	712	603
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.8	19.2	15.9	49.7	39.6	40.1	49.7	0.0	33.1	40.0	19.7	21.8
Incr Delay (d2), s/veh	57.0	0.3	0.0	84.1	15.7	27.8	84.1	0.0	0.1	58.2	0.0	1.5
Initial Q Delay(d3), s/veh	38.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	23.0	4.9	0.1	0.1	7.6	7.9	0.1	0.0	0.2	13.7	1.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	132.5	19.5	15.9	133.7	55.3	67.9	133.7	0.0	33.3	98.2	20.6	23.3
LnGrp LOS	F	B	B	F	E	E	F		C	F	C	C
Approach Vol, veh/h		828			525			10			566	
Approach Delay, s/veh		86.5			61.4			43.3			71.2	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	23.0	4.6	47.9	4.6	42.4	30.5	22.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	18.5	5.0	39.0	5.0	33.0	26.0	18.0
Max Q Clear Time (g_c+I1), s	21.5	2.4	2.1	14.0	2.1	10.8	28.0	17.4
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	74.9
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	437	294	7	1	244	373	1	7	4	322	5	269
Future Volume (veh/h)	437	294	7	1	244	373	1	7	4	322	5	269
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	491	330	7	1	274	250	1	8	1	362	6	198
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	470	805	682	2	314	580	2	306	38	352	719	1027
Arrive On Green	0.26	0.43	0.43	0.00	0.17	0.17	0.00	0.19	0.19	0.20	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1630	204	1781	1870	1585
Grp Volume(v), veh/h	491	330	7	1	274	250	1	0	9	362	6	198
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1834	1781	1870	1585
Q Serve(g_s), s	26.0	12.0	0.2	0.1	14.1	11.7	0.1	0.0	0.4	19.5	0.2	5.0
Cycle Q Clear(g_c), s	26.0	12.0	0.2	0.1	14.1	11.7	0.1	0.0	0.4	19.5	0.2	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	470	805	682	2	314	580	2	0	344	352	719	1027
V/C Ratio(X)	1.04	0.41	0.01	0.41	0.87	0.43	0.41	0.00	0.03	1.03	0.01	0.19
Avail Cap(c_a), veh/h	470	805	682	90	342	603	90	0	344	352	719	1027
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	19.4	16.1	49.2	40.0	23.5	49.2	0.0	32.7	39.5	19.3	7.0
Incr Delay (d2), s/veh	53.7	0.3	0.0	84.0	19.9	0.5	84.0	0.0	0.1	55.1	0.0	0.4
Initial Q Delay(d3), s/veh	38.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	22.6	4.9	0.1	0.1	7.9	4.2	0.1	0.0	0.2	13.5	1.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	128.3	19.7	16.1	133.2	59.9	24.0	133.2	0.0	32.8	94.6	20.2	7.4
LnGrp LOS	F	B	B	F	E	C	F		C	F	C	A
Approach Vol, veh/h		828			525			10			566	
Approach Delay, s/veh		84.1			43.0			42.9			63.3	
Approach LOS		F			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	23.0	4.6	46.9	4.6	42.4	30.5	21.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	18.5	5.0	39.0	5.0	33.0	26.0	18.0
Max Q Clear Time (g_c+I1), s	21.5	2.4	2.1	14.0	2.1	7.0	28.0	16.1
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.6	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	66.6
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	562	45	9	536	12	70	9	18	18	5	17
Future Volume (veh/h)	14	562	45	9	536	12	70	9	18	18	5	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	631	51	10	602	13	79	10	20	20	6	19
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	37	805	65	24	868	736	312	33	39	210	66	96
Arrive On Green	0.02	0.47	0.47	0.01	0.46	0.46	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	1708	138	1781	1870	1585	995	240	277	467	474	688
Grp Volume(v), veh/h	16	0	682	10	602	13	109	0	0	45	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1846	1781	1870	1585	1512	0	0	1629	0	0
Q Serve(g_s), s	0.3	0.0	11.1	0.2	9.1	0.2	1.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	11.1	0.2	9.1	0.2	2.3	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	0.72		0.18	0.44		0.42
Lane Grp Cap(c), veh/h	37	0	870	24	868	736	384	0	0	372	0	0
V/C Ratio(X)	0.44	0.00	0.78	0.42	0.69	0.02	0.28	0.00	0.00	0.12	0.00	0.00
Avail Cap(c_a), veh/h	248	0	1465	248	1485	1258	910	0	0	921	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.4	0.0	8.0	17.6	7.6	5.2	14.2	0.0	0.0	13.7	0.0	0.0
Incr Delay (d2), s/veh	8.0	0.0	1.6	11.7	1.0	0.0	0.4	0.0	0.0	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.2	0.1	1.8	0.0	0.7	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	25.4	0.0	9.5	29.2	8.6	5.2	14.6	0.0	0.0	13.8	0.0	0.0
LnGrp LOS	C		A	C	A	A	B			B		
Approach Vol, veh/h		698			625			109			45	
Approach Delay, s/veh		9.9			8.9			14.6			13.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	5.0	21.4		9.5	5.2	21.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	28.5		18.0	5.0	28.5				
Max Q Clear Time (g_c+I1), s		4.3	2.2	13.1		2.8	2.3	11.1				
Green Ext Time (p_c), s		0.4	0.0	3.8		0.1	0.0	3.4				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	9.9
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	384	156	57	351	109	132	157	41	68	116	70
Future Volume (veh/h)	149	384	156	57	351	109	132	157	41	68	116	70
Initial Q (Qb), veh	0	0	0	0	0	0	4	2	0	1	3	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	447	147	66	408	103	153	183	39	79	135	58
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	515	169	85	450	114	196	449	92	104	319	126
Arrive On Green	0.12	0.38	0.38	0.05	0.31	0.31	0.11	0.30	0.30	0.06	0.25	0.25
Sat Flow, veh/h	1781	1347	443	1781	1441	364	1781	1495	319	1781	1241	533
Grp Volume(v), veh/h	173	0	594	66	0	511	153	0	222	79	0	193
Grp Sat Flow(s),veh/h/ln	1781	0	1791	1781	0	1805	1781	0	1813	1781	0	1774
Q Serve(g_s), s	7.9	0.0	25.4	3.0	0.0	22.5	7.0	0.0	8.2	3.6	0.0	7.6
Cycle Q Clear(g_c), s	7.9	0.0	25.4	3.0	0.0	22.5	7.0	0.0	8.2	3.6	0.0	7.6
Prop In Lane	1.00		0.25	1.00		0.20	1.00		0.18	1.00		0.30
Lane Grp Cap(c), veh/h	209	0	685	85	0	564	196	0	536	104	0	439
V/C Ratio(X)	0.83	0.00	0.87	0.78	0.00	0.91	0.78	0.00	0.41	0.76	0.00	0.44
Avail Cap(c_a), veh/h	247	0	766	118	0	642	225	0	536	148	0	438
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	23.7	39.2	0.0	27.4	36.6	0.0	23.6	38.6	0.0	26.7
Incr Delay (d2), s/veh	17.6	0.0	9.6	19.4	0.0	15.4	14.3	0.0	2.4	13.0	0.0	3.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	13.8	0.0	0.2	2.7	0.0	0.6
%ile BackOfQ(50%),veh/ln	4.3	0.0	11.8	1.8	0.0	11.5	4.9	0.0	4.0	2.1	0.0	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	53.5	0.0	33.3	58.6	0.0	42.8	64.7	0.0	26.2	54.3	0.0	30.5
LnGrp LOS	D		C	E		D	E		C	D		C
Approach Vol, veh/h		767			577			375			272	
Approach Delay, s/veh		37.9			44.6			41.9			37.4	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	29.0	8.4	36.3	13.3	25.0	14.3	30.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.9	24.1	5.5	35.5	10.5	20.5	11.5	29.5				
Max Q Clear Time (g_c+I1), s	5.6	10.2	5.0	27.4	9.0	9.6	9.9	24.5				
Green Ext Time (p_c), s	0.0	1.1	0.0	2.4	0.1	0.8	0.1	1.4				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	40.5
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	232	1	1	306	275	0	2	3	378	2	501
Future Volume (veh/h)	376	232	1	1	306	275	0	2	3	378	2	501
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	396	244	0	1	322	141	0	2	2	398	2	358
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	401	755	640	2	337	285	2	163	163	401	860	729
Arrive On Green	0.22	0.40	0.00	0.00	0.18	0.18	0.00	0.19	0.19	0.22	0.46	0.46
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	396	244	0	1	322	141	0	0	4	398	2	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	22.2	8.9	0.0	0.1	17.1	8.0	0.0	0.0	0.2	22.3	0.1	15.8
Cycle Q Clear(g_c), s	22.2	8.9	0.0	0.1	17.1	8.0	0.0	0.0	0.2	22.3	0.1	15.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	401	755	640	2	337	285	2	0	326	401	860	729
V/C Ratio(X)	0.99	0.32	0.00	0.41	0.96	0.49	0.00	0.00	0.01	0.99	0.00	0.49
Avail Cap(c_a), veh/h	401	755	640	89	337	285	89	0	326	401	860	729
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	20.5	0.0	49.9	40.6	36.9	0.0	0.0	32.9	38.7	14.6	18.8
Incr Delay (d2), s/veh	41.7	0.2	0.0	84.1	37.5	1.3	0.0	0.0	0.1	43.0	0.0	0.5
Initial Q Delay(d3), s/veh	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.3	3.7	0.0	0.1	11.0	3.1	0.0	0.0	0.1	14.0	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	93.0	20.7	0.0	134.0	78.1	38.2	0.0	0.0	33.0	81.7	14.6	19.3
LnGrp LOS	F	C		F	E	D			C	F	B	B
Approach Vol, veh/h		640			464			4			758	
Approach Delay, s/veh		65.4			66.1			33.0			52.1	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	23.5	4.6	44.9	0.0	50.5	27.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	19.0	5.0	35.5	5.0	36.5	22.5	18.0
Max Q Clear Time (g_c+I1), s	24.3	2.2	2.1	10.9	0.0	17.8	24.2	19.1
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	60.1
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	232	1	1	306	275	0	2	3	378	2	501
Future Volume (veh/h)	376	232	1	1	306	275	0	2	3	378	2	501
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	396	244	0	1	322	141	0	2	2	398	2	358
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	401	755	640	2	337	642	2	163	163	401	860	1086
Arrive On Green	0.22	0.40	0.00	0.00	0.18	0.18	0.00	0.19	0.19	0.22	0.46	0.46
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	396	244	0	1	322	141	0	0	4	398	2	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	22.2	8.9	0.0	0.1	17.1	5.8	0.0	0.0	0.2	22.3	0.1	9.2
Cycle Q Clear(g_c), s	22.2	8.9	0.0	0.1	17.1	5.8	0.0	0.0	0.2	22.3	0.1	9.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	401	755	640	2	337	642	2	0	326	401	860	1086
V/C Ratio(X)	0.99	0.32	0.00	0.41	0.96	0.22	0.00	0.00	0.01	0.99	0.00	0.33
Avail Cap(c_a), veh/h	401	755	640	89	337	642	89	0	326	401	860	1086
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	20.5	0.0	49.9	40.6	19.4	0.0	0.0	32.9	38.7	14.6	6.4
Incr Delay (d2), s/veh	41.7	0.2	0.0	84.1	37.5	0.2	0.0	0.0	0.1	43.0	0.0	0.2
Initial Q Delay(d3), s/veh	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.3	3.7	0.0	0.1	11.0	2.0	0.0	0.0	0.1	14.0	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	93.0	20.7	0.0	134.0	78.1	19.6	0.0	0.0	33.0	81.7	14.6	6.6
LnGrp LOS	F	C		F	E	B			C	F	B	A
Approach Vol, veh/h		640			464			4			758	
Approach Delay, s/veh		65.4			60.5			33.0			46.0	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	23.5	4.6	44.9	0.0	50.5	27.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	19.0	5.0	35.5	5.0	36.5	22.5	18.0
Max Q Clear Time (g_c+I1), s	24.3	2.2	2.1	10.9	0.0	11.2	24.2	19.1
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.0	1.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	56.3
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	497	94	13	524	34	49	9	9	25	10	11
Future Volume (veh/h)	20	497	94	13	524	34	49	9	9	25	10	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	529	100	14	557	36	52	10	10	27	11	12
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	47	674	128	32	810	686	314	59	31	247	93	56
Arrive On Green	0.03	0.44	0.44	0.02	0.43	0.43	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	1529	289	1781	1870	1585	907	406	212	582	635	384
Grp Volume(v), veh/h	21	0	629	14	557	36	72	0	0	50	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1818	1781	1870	1585	1526	0	0	1601	0	0
Q Serve(g_s), s	0.4	0.0	10.1	0.3	8.2	0.5	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	10.1	0.3	8.2	0.5	1.3	0.0	0.0	0.8	0.0	0.0
Prop In Lane	1.00		0.16	1.00		1.00	0.72		0.14	0.54		0.24
Lane Grp Cap(c), veh/h	47	0	802	32	810	686	404	0	0	396	0	0
V/C Ratio(X)	0.45	0.00	0.78	0.43	0.69	0.05	0.18	0.00	0.00	0.13	0.00	0.00
Avail Cap(c_a), veh/h	260	0	1249	260	1285	1089	961	0	0	974	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.4	0.0	8.2	16.6	7.8	5.6	13.0	0.0	0.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	6.5	0.0	1.8	8.8	1.1	0.0	0.2	0.0	0.0	0.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.1	0.2	1.7	0.1	0.4	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	22.9	0.0	9.9	25.4	8.9	5.7	13.2	0.0	0.0	13.0	0.0	0.0
LnGrp LOS	C		A	C	A	A	B			B		
Approach Vol, veh/h		650			607			72			50	
Approach Delay, s/veh		10.4			9.1			13.2			13.0	
Approach LOS		B			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	5.1	19.6		9.5	5.4	19.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	23.5		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		3.3	2.3	12.1		2.8	2.4	10.2				
Green Ext Time (p_c), s		0.2	0.0	3.0		0.1	0.0	2.8				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	10.0
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	369	71	19	397	88	63	57	16	105	101	150
Future Volume (veh/h)	77	369	71	19	397	88	63	57	16	105	101	150
Initial Q (Qb), veh	0	0	0	0	0	0	1	0	0	0	4	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	388	64	20	418	76	66	60	11	111	106	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	517	85	41	455	83	96	464	85	142	277	287
Arrive On Green	0.06	0.33	0.33	0.02	0.30	0.30	0.05	0.30	0.30	0.08	0.33	0.33
Sat Flow, veh/h	1781	1566	258	1781	1540	280	1781	1538	282	1781	797	910
Grp Volume(v), veh/h	81	0	452	20	0	494	66	0	71	111	0	227
Grp Sat Flow(s),veh/h/ln	1781	0	1824	1781	0	1820	1781	0	1820	1781	0	1707
Q Serve(g_s), s	3.0	0.0	15.0	0.8	0.0	17.8	2.5	0.0	1.9	4.2	0.0	7.0
Cycle Q Clear(g_c), s	3.0	0.0	15.0	0.8	0.0	17.8	2.5	0.0	1.9	4.2	0.0	7.0
Prop In Lane	1.00		0.14	1.00		0.15	1.00		0.15	1.00		0.53
Lane Grp Cap(c), veh/h	104	0	603	41	0	537	96	0	550	142	0	562
V/C Ratio(X)	0.78	0.00	0.75	0.49	0.00	0.92	0.69	0.00	0.13	0.78	0.00	0.40
Avail Cap(c_a), veh/h	139	0	603	131	0	549	134	0	549	150	0	561
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.6	0.0	20.2	32.8	0.0	23.2	31.7	0.0	17.2	30.7	0.0	17.9
Incr Delay (d2), s/veh	18.1	0.0	5.2	8.6	0.0	20.5	8.5	0.0	0.5	22.4	0.0	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.6
%ile BackOfQ(50%),veh/ln	1.8	0.0	6.6	0.4	0.0	10.0	1.4	0.0	0.8	2.6	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	49.6	0.0	25.5	41.4	0.0	43.7	42.7	0.0	17.7	53.1	0.0	20.7
LnGrp LOS	D		C	D		D	D		B	D		C
Approach Vol, veh/h		533			514			137			338	
Approach Delay, s/veh		29.1			43.6			29.7			31.3	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	25.0	6.1	26.9	8.1	26.8	8.5	24.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.7	20.5	5.0	20.8	5.1	21.1	5.3	20.5				
Max Q Clear Time (g_c+I1), s	6.2	3.9	2.8	17.0	4.5	9.0	5.0	19.8				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.0	0.0	1.1	0.0	0.2				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	34.6
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	472	318	8	1	264	403	1	8	4	348	5	291
Future Volume (veh/h)	472	318	8	1	264	403	1	8	4	348	5	291
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	530	357	8	1	297	284	1	9	1	391	6	223
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	463	820	695	2	337	285	2	306	34	347	708	600
Arrive On Green	0.26	0.44	0.44	0.00	0.18	0.18	0.00	0.19	0.19	0.19	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1654	184	1781	1870	1585
Grp Volume(v), veh/h	530	357	8	1	297	284	1	0	10	391	6	223
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1837	1781	1870	1585
Q Serve(g_s), s	26.0	13.2	0.3	0.1	15.5	17.9	0.1	0.0	0.4	19.5	0.2	10.2
Cycle Q Clear(g_c), s	26.0	13.2	0.3	0.1	15.5	17.9	0.1	0.0	0.4	19.5	0.2	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	463	820	695	2	337	285	2	0	340	347	708	600
V/C Ratio(X)	1.14	0.44	0.01	0.41	0.88	1.00	0.41	0.00	0.03	1.13	0.01	0.37
Avail Cap(c_a), veh/h	463	820	695	89	337	285	89	0	340	347	708	600
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	19.5	15.8	49.9	40.0	41.0	49.9	0.0	33.4	40.3	19.9	22.5
Incr Delay (d2), s/veh	87.8	0.4	0.0	84.1	22.8	51.9	84.1	0.0	0.2	86.8	0.0	1.8
Initial Q Delay(d3), s/veh	38.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	26.9	5.4	0.1	0.1	8.9	10.8	0.1	0.0	0.2	16.5	1.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	163.6	19.8	15.8	134.0	62.8	92.9	134.0	0.0	33.6	127.0	20.8	24.2
LnGrp LOS	F	B	B	F	E	F	F		C	F	C	C
Approach Vol, veh/h		895			582			11			620	
Approach Delay, s/veh		105.0			77.6			42.7			89.0	
Approach LOS		F			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	23.0	4.6	48.4	4.6	42.4	30.5	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	18.5	5.0	39.0	5.0	33.0	26.0	18.0
Max Q Clear Time (g_c+I1), s	21.5	2.4	2.1	15.2	2.1	12.2	28.0	19.9
Green Ext Time (p_c), s	0.0	0.0	0.0	1.9	0.0	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	92.4
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	472	318	8	1	264	403	1	8	4	348	5	291
Future Volume (veh/h)	472	318	8	1	264	403	1	8	4	348	5	291
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	530	357	8	1	297	284	1	9	1	391	6	223
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	542	870	738	2	304	608	2	269	30	393	714	1088
Arrive On Green	0.30	0.47	0.47	0.00	0.16	0.16	0.00	0.16	0.16	0.22	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1654	184	1781	1870	1585
Grp Volume(v), veh/h	530	357	8	1	297	284	1	0	10	391	6	223
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1837	1781	1870	1585
Q Serve(g_s), s	35.4	15.1	0.3	0.1	19.0	16.2	0.1	0.0	0.6	26.3	0.2	6.2
Cycle Q Clear(g_c), s	35.4	15.1	0.3	0.1	19.0	16.2	0.1	0.0	0.6	26.3	0.2	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	542	870	738	2	304	608	2	0	299	393	714	1088
V/C Ratio(X)	0.98	0.41	0.01	0.41	0.98	0.47	0.41	0.00	0.03	0.99	0.01	0.21
Avail Cap(c_a), veh/h	542	870	738	74	304	608	74	0	299	393	714	1088
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.8	21.2	17.2	59.9	50.0	27.8	59.9	0.0	42.3	46.7	23.6	6.9
Incr Delay (d2), s/veh	33.0	0.3	0.0	84.5	45.2	0.6	84.5	0.0	0.2	43.7	0.0	0.4
Initial Q Delay(d3), s/veh	23.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	23.8	6.4	0.1	0.1	12.4	6.0	0.1	0.0	0.3	16.0	1.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	98.2	21.5	17.2	144.4	95.3	28.4	144.4	0.0	42.5	90.4	24.6	7.3
LnGrp LOS	F	C	B	F	F	C	F		D	F	C	A
Approach Vol, veh/h		895			582			11			620	
Approach Delay, s/veh		66.9			62.7			51.8			59.9	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	24.0	4.7	60.3	4.7	50.3	41.0	24.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	19.5	5.0	51.0	5.0	41.0	36.5	19.5
Max Q Clear Time (g_c+I1), s	28.3	2.6	2.1	17.1	2.1	8.2	37.4	21.0
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0	0.0	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	63.6
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	629	50	10	600	13	78	10	20	20	6	19
Future Volume (veh/h)	16	629	50	10	600	13	78	10	20	20	6	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	707	56	11	674	15	88	11	22	22	7	21
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	40	877	69	26	943	799	295	28	37	194	65	93
Arrive On Green	0.02	0.51	0.51	0.01	0.50	0.50	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	1710	135	1781	1870	1585	1033	210	276	478	482	695
Grp Volume(v), veh/h	18	0	763	11	674	15	121	0	0	50	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1846	1781	1870	1585	1518	0	0	1655	0	0
Q Serve(g_s), s	0.4	0.0	13.7	0.2	11.1	0.2	1.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	13.7	0.2	11.1	0.2	2.9	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	0.73		0.18	0.44		0.42
Lane Grp Cap(c), veh/h	40	0	946	26	943	799	360	0	0	352	0	0
V/C Ratio(X)	0.45	0.00	0.81	0.43	0.71	0.02	0.34	0.00	0.00	0.14	0.00	0.00
Avail Cap(c_a), veh/h	224	0	1553	224	1574	1334	821	0	0	834	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.2	0.0	8.1	19.5	7.6	4.9	16.1	0.0	0.0	15.4	0.0	0.0
Incr Delay (d2), s/veh	7.5	0.0	1.7	10.9	1.0	0.0	0.5	0.0	0.0	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.8	0.2	2.3	0.0	1.0	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	26.7	0.0	9.7	30.4	8.7	4.9	16.6	0.0	0.0	15.6	0.0	0.0
LnGrp LOS	C		A	C	A	A	B			B		
Approach Vol, veh/h		781			700			121			50	
Approach Delay, s/veh		10.1			8.9			16.6			15.6	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.8	5.1	24.9		9.8	5.4	24.6				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	33.5		18.0	5.0	33.5				
Max Q Clear Time (g_c+I1), s		4.9	2.2	15.7		3.0	2.4	13.1				
Green Ext Time (p_c), s		0.5	0.0	4.7		0.1	0.0	4.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			10.3									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	413	168	61	378	117	142	169	44	73	125	75
Future Volume (veh/h)	160	413	168	61	378	117	142	169	44	73	125	75
Initial Q (Qb), veh	0	0	0	0	0	0	4	2	0	1	3	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	480	161	71	440	112	165	197	42	85	145	64
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	534	179	91	468	119	203	433	88	111	303	121
Arrive On Green	0.12	0.40	0.40	0.05	0.33	0.33	0.11	0.28	0.28	0.06	0.23	0.23
Sat Flow, veh/h	1781	1340	449	1781	1438	366	1781	1494	319	1781	1230	543
Grp Volume(v), veh/h	186	0	641	71	0	552	165	0	239	85	0	209
Grp Sat Flow(s),veh/h/ln	1781	0	1789	1781	0	1804	1781	0	1813	1781	0	1773
Q Serve(g_s), s	9.0	0.0	29.5	3.5	0.0	26.1	8.0	0.0	9.5	4.1	0.0	9.0
Cycle Q Clear(g_c), s	9.0	0.0	29.5	3.5	0.0	26.1	8.0	0.0	9.5	4.1	0.0	9.0
Prop In Lane	1.00		0.25	1.00		0.20	1.00		0.18	1.00		0.31
Lane Grp Cap(c), veh/h	221	0	713	91	0	588	203	0	515	111	0	415
V/C Ratio(X)	0.84	0.00	0.90	0.78	0.00	0.94	0.81	0.00	0.46	0.76	0.00	0.50
Avail Cap(c_a), veh/h	233	0	724	112	0	606	213	0	515	140	0	414
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	24.8	41.2	0.0	28.8	38.5	0.0	26.1	40.7	0.0	29.5
Incr Delay (d2), s/veh	22.6	0.0	14.1	24.1	0.0	22.4	20.1	0.0	3.0	17.4	0.0	4.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	14.9	0.0	0.2	2.5	0.0	0.8
%ile BackOfQ(50%),veh/ln	5.2	0.0	14.4	2.1	0.0	14.3	5.8	0.0	4.7	2.5	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.3	0.0	38.9	65.3	0.0	51.2	73.5	0.0	29.3	60.5	0.0	34.6
LnGrp LOS	E		D	E		D	E		C	E		C
Approach Vol, veh/h		827			623			404			294	
Approach Delay, s/veh		43.7			52.8			47.4			42.1	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	29.4	9.0	39.5	14.3	25.0	15.4	33.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.9	24.1	5.5	35.5	10.5	20.5	11.5	29.5				
Max Q Clear Time (g_c+I1), s	6.1	11.5	5.5	31.5	10.0	11.0	11.0	28.1				
Green Ext Time (p_c), s	0.0	1.1	0.0	1.6	0.0	0.8	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			46.8									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	251	1	1	330	297	0	2	3	408	2	541
Future Volume (veh/h)	406	251	1	1	330	297	0	2	3	408	2	541
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	427	264	0	1	347	165	0	2	2	429	2	400
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	426	793	672	2	349	295	2	146	146	429	845	716
Arrive On Green	0.24	0.42	0.00	0.00	0.19	0.19	0.00	0.17	0.17	0.24	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	427	264	0	1	347	165	0	0	4	429	2	400
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	26.3	10.4	0.0	0.1	20.4	10.4	0.0	0.0	0.2	26.5	0.1	20.4
Cycle Q Clear(g_c), s	26.3	10.4	0.0	0.1	20.4	10.4	0.0	0.0	0.2	26.5	0.1	20.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	426	793	672	2	349	295	2	0	292	429	845	716
V/C Ratio(X)	1.00	0.33	0.00	0.41	1.00	0.56	0.00	0.00	0.01	1.00	0.00	0.56
Avail Cap(c_a), veh/h	426	793	672	81	349	295	81	0	292	429	845	716
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	21.2	0.0	54.9	44.7	40.6	0.0	0.0	38.0	41.7	16.5	22.1
Incr Delay (d2), s/veh	44.3	0.2	0.0	84.3	46.9	2.3	0.0	0.0	0.1	43.4	0.0	1.0
Initial Q Delay(d3), s/veh	16.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	4.4	0.0	0.1	13.6	4.1	0.0	0.0	0.1	16.3	0.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	103.0	21.5	0.0	139.2	91.6	43.0	0.0	0.0	38.1	85.1	16.5	23.1
LnGrp LOS	F	C		F	F	D			D	F	B	C
Approach Vol, veh/h		691			513			4			831	
Approach Delay, s/veh		71.9			76.1			38.1			55.1	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	23.2	4.7	51.1	0.0	54.2	30.8	25.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	18.7	5.0	41.8	5.0	40.2	26.3	20.5
Max Q Clear Time (g_c+I1), s	28.5	2.2	2.1	12.4	0.0	22.4	28.3	22.4
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	66.0
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	251	1	1	330	297	0	2	3	408	2	541
Future Volume (veh/h)	406	251	1	1	330	297	0	2	3	408	2	541
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	427	264	0	1	347	165	0	2	2	429	2	400
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	426	793	672	2	349	677	2	146	146	429	845	1095
Arrive On Green	0.24	0.42	0.00	0.00	0.19	0.19	0.00	0.17	0.17	0.24	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	427	264	0	1	347	165	0	0	4	429	2	400
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	26.3	10.4	0.0	0.1	20.4	7.3	0.0	0.0	0.2	26.5	0.1	11.5
Cycle Q Clear(g_c), s	26.3	10.4	0.0	0.1	20.4	7.3	0.0	0.0	0.2	26.5	0.1	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	426	793	672	2	349	677	2	0	292	429	845	1095
V/C Ratio(X)	1.00	0.33	0.00	0.41	1.00	0.24	0.00	0.00	0.01	1.00	0.00	0.37
Avail Cap(c_a), veh/h	426	793	672	81	349	677	81	0	292	429	845	1095
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	21.2	0.0	54.9	44.7	20.1	0.0	0.0	38.0	41.7	16.5	7.0
Incr Delay (d2), s/veh	44.3	0.2	0.0	84.3	46.9	0.2	0.0	0.0	0.1	43.4	0.0	0.2
Initial Q Delay(d3), s/veh	16.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	4.4	0.0	0.1	13.6	2.6	0.0	0.0	0.1	16.3	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	103.0	21.5	0.0	139.2	91.6	20.3	0.0	0.0	38.1	85.1	16.5	7.2
LnGrp LOS	F	C		F	F	C			D	F	B	A
Approach Vol, veh/h		691			513			4			831	
Approach Delay, s/veh		71.9			68.8			38.1			47.5	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	23.2	4.7	51.1	0.0	54.2	30.8	25.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	18.7	5.0	41.8	5.0	40.2	26.3	20.5
Max Q Clear Time (g_c+I1), s	28.5	2.2	2.1	12.4	0.0	13.5	28.3	22.4
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.0	1.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	61.1
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	556	105	15	586	38	55	10	10	28	11	12
Future Volume (veh/h)	22	556	105	15	586	38	55	10	10	28	11	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	591	112	16	623	40	59	11	11	30	12	13
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	739	140	36	889	754	293	52	28	233	82	51
Arrive On Green	0.03	0.48	0.48	0.02	0.48	0.48	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	1529	290	1781	1870	1585	942	384	208	622	608	381
Grp Volume(v), veh/h	23	0	703	16	623	40	81	0	0	55	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1818	1781	1870	1585	1535	0	0	1610	0	0
Q Serve(g_s), s	0.5	0.0	12.1	0.3	9.8	0.5	0.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	12.1	0.3	9.8	0.5	1.6	0.0	0.0	1.0	0.0	0.0
Prop In Lane	1.00		0.16	1.00		1.00	0.73		0.14	0.55		0.24
Lane Grp Cap(c), veh/h	51	0	879	36	889	754	373	0	0	365	0	0
V/C Ratio(X)	0.45	0.00	0.80	0.44	0.70	0.05	0.22	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	239	0	1390	239	1430	1212	883	0	0	895	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.8	0.0	8.1	18.0	7.7	5.3	14.6	0.0	0.0	14.4	0.0	0.0
Incr Delay (d2), s/veh	6.2	0.0	1.8	8.1	1.0	0.0	0.3	0.0	0.0	0.2	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.5	0.2	2.0	0.1	0.6	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.1	0.0	9.9	26.1	8.7	5.3	14.9	0.0	0.0	14.6	0.0	0.0
LnGrp LOS	C		A	C	A	A	B			B		
Approach Vol, veh/h		726			679			81			55	
Approach Delay, s/veh		10.4			8.9			14.9			14.6	
Approach LOS		B			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	5.3	22.5		9.5	5.6	22.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	28.5		18.0	5.0	28.5				
Max Q Clear Time (g_c+I1), s		3.6	2.3	14.1		3.0	2.5	11.8				
Green Ext Time (p_c), s		0.3	0.0	3.9		0.2	0.0	3.6				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	10.1
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	397	76	20	427	95	68	61	17	113	109	161
Future Volume (veh/h)	83	397	76	20	427	95	68	61	17	113	109	161
Initial Q (Qb), veh	0	0	0	0	0	0	1	0	0	0	4	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	418	69	21	449	83	72	64	12	119	115	132
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	560	93	42	490	91	97	435	82	151	265	274
Arrive On Green	0.06	0.36	0.36	0.02	0.32	0.32	0.05	0.28	0.28	0.08	0.32	0.32
Sat Flow, veh/h	1781	1565	258	1781	1535	284	1781	1532	287	1781	794	912
Grp Volume(v), veh/h	87	0	487	21	0	532	72	0	76	119	0	247
Grp Sat Flow(s),veh/h/ln	1781	0	1824	1781	0	1819	1781	0	1819	1781	0	1706
Q Serve(g_s), s	3.5	0.0	16.9	0.8	0.0	20.3	2.9	0.0	2.3	4.7	0.0	8.4
Cycle Q Clear(g_c), s	3.5	0.0	16.9	0.8	0.0	20.3	2.9	0.0	2.3	4.7	0.0	8.4
Prop In Lane	1.00		0.14	1.00		0.16	1.00		0.16	1.00		0.53
Lane Grp Cap(c), veh/h	111	0	653	42	0	581	97	0	517	151	0	539
V/C Ratio(X)	0.78	0.00	0.75	0.50	0.00	0.92	0.74	0.00	0.15	0.79	0.00	0.46
Avail Cap(c_a), veh/h	136	0	653	123	0	618	146	0	517	160	0	539
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.4	0.0	20.3	34.8	0.0	23.6	33.7	0.0	19.3	32.4	0.0	20.1
Incr Delay (d2), s/veh	20.7	0.0	4.7	8.7	0.0	17.9	10.6	0.0	0.6	21.6	0.0	2.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.7
%ile BackOfQ(50%),veh/ln	2.1	0.0	7.3	0.5	0.0	10.8	1.7	0.0	1.0	2.9	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.1	0.0	25.0	43.5	0.0	41.6	47.2	0.0	19.9	54.1	0.0	23.6
LnGrp LOS	D		C	D		D	D		B	D		C
Approach Vol, veh/h		574			553			148			366	
Approach Delay, s/veh		29.4			41.7			33.2			33.5	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.6	25.0	6.2	30.3	8.3	27.3	9.0	27.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	20.5	5.0	25.0	5.9	21.1	5.5	24.5				
Max Q Clear Time (g_c+I1), s	6.7	4.3	2.8	18.9	4.9	10.4	5.5	22.3				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.5	0.0	1.1	0.0	0.7				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	34.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	437	295	7	1	247	392	1	7	4	328	5	269
Future Volume (veh/h)	437	295	7	1	247	392	1	7	4	328	5	269
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	491	331	7	1	278	271	1	8	1	369	6	198
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	463	820	695	2	337	285	2	297	37	353	708	600
Arrive On Green	0.26	0.44	0.44	0.00	0.18	0.18	0.00	0.18	0.18	0.20	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1630	204	1781	1870	1585
Grp Volume(v), veh/h	491	331	7	1	278	271	1	0	9	369	6	198
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1834	1781	1870	1585
Q Serve(g_s), s	26.0	12.1	0.2	0.1	14.3	16.9	0.1	0.0	0.4	19.8	0.2	8.9
Cycle Q Clear(g_c), s	26.0	12.1	0.2	0.1	14.3	16.9	0.1	0.0	0.4	19.8	0.2	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	463	820	695	2	337	285	2	0	334	353	708	600
V/C Ratio(X)	1.06	0.40	0.01	0.41	0.83	0.95	0.41	0.00	0.03	1.05	0.01	0.33
Avail Cap(c_a), veh/h	463	820	695	89	337	285	89	0	334	353	708	600
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	19.1	15.8	49.9	39.5	40.6	49.9	0.0	33.6	40.1	19.9	22.1
Incr Delay (d2), s/veh	58.7	0.3	0.0	84.1	15.4	39.8	84.1	0.0	0.1	60.5	0.0	1.5
Initial Q Delay(d3), s/veh	38.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	23.2	4.9	0.1	0.1	7.7	9.4	0.1	0.0	0.2	14.1	1.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	134.5	19.5	15.8	134.0	54.9	80.4	134.0	0.0	33.8	100.6	20.8	23.5
LnGrp LOS	F	B	B	F	D	F	F		C	F	C	C
Approach Vol, veh/h		829			550			10			573	
Approach Delay, s/veh		87.6			67.6			43.8			73.1	
Approach LOS		F			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.3	22.7	4.6	48.4	4.6	42.4	30.5	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.8	18.2	5.0	39.0	5.0	33.0	26.0	18.0
Max Q Clear Time (g_c+I1), s	21.8	2.4	2.1	14.1	2.1	10.9	28.0	18.9
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.6	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	77.5
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	437	295	7	1	247	392	1	7	4	328	5	269
Future Volume (veh/h)	437	295	7	1	247	392	1	7	4	328	5	269
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	491	331	7	1	278	271	1	8	1	369	6	198
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	469	807	684	2	318	587	2	300	38	357	717	1025
Arrive On Green	0.26	0.43	0.43	0.00	0.17	0.17	0.00	0.18	0.18	0.20	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1630	204	1781	1870	1585
Grp Volume(v), veh/h	491	331	7	1	278	271	1	0	9	369	6	198
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1834	1781	1870	1585
Q Serve(g_s), s	26.0	12.1	0.2	0.1	14.3	12.8	0.1	0.0	0.4	19.8	0.2	5.0
Cycle Q Clear(g_c), s	26.0	12.1	0.2	0.1	14.3	12.8	0.1	0.0	0.4	19.8	0.2	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	469	807	684	2	318	587	2	0	338	357	717	1025
V/C Ratio(X)	1.05	0.41	0.01	0.41	0.88	0.46	0.41	0.00	0.03	1.03	0.01	0.19
Avail Cap(c_a), veh/h	469	807	684	90	341	607	90	0	338	357	717	1025
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	19.4	16.0	49.3	40.0	23.6	49.3	0.0	33.0	39.5	19.4	7.0
Incr Delay (d2), s/veh	54.4	0.3	0.0	84.0	20.7	0.6	84.0	0.0	0.1	56.5	0.0	0.4
Initial Q Delay(d3), s/veh	38.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	22.7	4.9	0.1	0.1	8.1	4.6	0.1	0.0	0.2	13.8	1.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	129.2	19.7	16.0	133.3	60.6	24.2	133.3	0.0	33.2	96.0	20.3	7.5
LnGrp LOS	F	B	B	F	E	C	F		C	F	C	A
Approach Vol, veh/h		829			550			10			573	
Approach Delay, s/veh		84.5			42.8			43.2			64.6	
Approach LOS		F			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.3	22.7	4.6	47.1	4.6	42.4	30.5	21.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.8	18.2	5.0	39.0	5.0	33.0	26.0	18.0
Max Q Clear Time (g_c+I1), s	21.8	2.4	2.1	14.1	2.1	7.0	28.0	16.3
Green Ext Time (p_c), s	0.0	0.0	0.0	1.8	0.0	0.6	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	66.8
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	562	45	9	536	25	70	9	18	59	5	39
Future Volume (veh/h)	21	562	45	9	536	25	70	9	18	59	5	39
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	631	51	10	602	28	79	10	20	66	6	44
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	805	65	24	851	721	320	34	41	268	28	85
Arrive On Green	0.03	0.47	0.47	0.01	0.46	0.46	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	1708	138	1781	1870	1585	1053	247	292	795	199	608
Grp Volume(v), veh/h	24	0	682	10	602	28	109	0	0	116	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1846	1781	1870	1585	1592	0	0	1602	0	0
Q Serve(g_s), s	0.5	0.0	11.1	0.2	9.3	0.4	0.0	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	11.1	0.2	9.3	0.4	2.0	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	0.72		0.18	0.57		0.38
Lane Grp Cap(c), veh/h	53	0	870	24	851	721	395	0	0	380	0	0
V/C Ratio(X)	0.45	0.00	0.78	0.42	0.71	0.04	0.28	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	248	0	1465	248	1485	1258	912	0	0	913	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.1	0.0	8.0	17.6	7.9	5.4	14.2	0.0	0.0	14.2	0.0	0.0
Incr Delay (d2), s/veh	6.0	0.0	1.6	11.7	1.1	0.0	0.4	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.2	0.1	1.9	0.1	0.7	0.0	0.0	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	23.1	0.0	9.5	29.2	9.0	5.4	14.5	0.0	0.0	14.7	0.0	0.0
LnGrp LOS	C		A	C	A	A	B			B		
Approach Vol, veh/h		706			640			109			116	
Approach Delay, s/veh		10.0			9.1			14.5			14.7	
Approach LOS		B			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	5.0	21.4		9.5	5.6	20.8				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	28.5		18.0	5.0	28.5				
Max Q Clear Time (g_c+I1), s		4.0	2.2	13.1		4.2	2.5	11.3				
Green Ext Time (p_c), s		0.4	0.0	3.8		0.5	0.0	3.4				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	10.3
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	425	156	57	364	109	132	157	41	68	116	70
Future Volume (veh/h)	149	425	156	57	364	109	132	157	41	68	116	70
Initial Q (Qb), veh	0	0	0	0	0	0	4	2	0	1	3	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	173	494	147	66	423	103	153	183	39	79	135	58
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	537	160	85	462	113	195	444	91	104	315	125
Arrive On Green	0.12	0.39	0.39	0.05	0.32	0.32	0.11	0.29	0.29	0.06	0.24	0.24
Sat Flow, veh/h	1781	1384	412	1781	1453	354	1781	1495	319	1781	1241	533
Grp Volume(v), veh/h	173	0	641	66	0	526	153	0	222	79	0	193
Grp Sat Flow(s),veh/h/ln	1781	0	1796	1781	0	1807	1781	0	1813	1781	0	1774
Q Serve(g_s), s	8.0	0.0	28.5	3.1	0.0	23.5	7.1	0.0	8.3	3.7	0.0	7.7
Cycle Q Clear(g_c), s	8.0	0.0	28.5	3.1	0.0	23.5	7.1	0.0	8.3	3.7	0.0	7.7
Prop In Lane	1.00		0.23	1.00		0.20	1.00		0.18	1.00		0.30
Lane Grp Cap(c), veh/h	209	0	697	85	0	575	195	0	530	104	0	434
V/C Ratio(X)	0.83	0.00	0.92	0.78	0.00	0.92	0.78	0.00	0.42	0.76	0.00	0.44
Avail Cap(c_a), veh/h	244	0	760	117	0	635	223	0	531	146	0	433
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	24.5	39.7	0.0	27.6	37.0	0.0	24.1	39.1	0.0	27.2
Incr Delay (d2), s/veh	18.2	0.0	15.6	19.9	0.0	17.1	14.8	0.0	2.4	13.4	0.0	3.3
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	14.0	0.0	0.2	2.7	0.0	0.6
%ile BackOfQ(50%),veh/ln	4.4	0.0	14.2	1.8	0.0	12.3	5.0	0.0	4.1	2.2	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	54.5	0.0	40.1	59.6	0.0	44.7	65.9	0.0	26.7	55.3	0.0	31.1
LnGrp LOS	D		D	E		D	E		C	E		C
Approach Vol, veh/h		814			592			375			272	
Approach Delay, s/veh		43.2			46.3			42.7			38.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.3	29.1	8.5	37.1	13.4	25.0	14.4	31.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.9	24.1	5.5	35.5	10.5	20.5	11.5	29.5				
Max Q Clear Time (g_c+I1), s	5.7	10.3	5.1	30.5	9.1	9.7	10.0	25.5				
Green Ext Time (p_c), s	0.0	1.1	0.0	1.9	0.1	0.8	0.1	1.2				

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	43.3
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	235	1	1	308	287	0	2	3	398	2	501
Future Volume (veh/h)	376	235	1	1	308	287	0	2	3	398	2	501
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	396	247	0	1	324	154	0	2	2	419	2	358
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	401	755	640	2	337	285	2	163	163	401	860	729
Arrive On Green	0.22	0.40	0.00	0.00	0.18	0.18	0.00	0.19	0.19	0.22	0.46	0.46
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	396	247	0	1	324	154	0	0	4	419	2	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	22.2	9.1	0.0	0.1	17.2	8.8	0.0	0.0	0.2	22.5	0.1	15.8
Cycle Q Clear(g_c), s	22.2	9.1	0.0	0.1	17.2	8.8	0.0	0.0	0.2	22.5	0.1	15.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	401	755	640	2	337	285	2	0	326	401	860	729
V/C Ratio(X)	0.99	0.33	0.00	0.41	0.96	0.54	0.00	0.00	0.01	1.05	0.00	0.49
Avail Cap(c_a), veh/h	401	755	640	89	337	285	89	0	326	401	860	729
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	20.5	0.0	49.9	40.7	37.2	0.0	0.0	32.9	38.8	14.6	18.8
Incr Delay (d2), s/veh	41.7	0.3	0.0	84.1	39.0	2.0	0.0	0.0	0.1	57.3	0.0	0.5
Initial Q Delay(d3), s/veh	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.3	3.8	0.0	0.1	11.2	3.4	0.0	0.0	0.1	15.7	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	93.0	20.7	0.0	134.0	79.6	39.3	0.0	0.0	33.0	96.1	14.6	19.3
LnGrp LOS	F	C		F	E	D			C	F	B	B
Approach Vol, veh/h		643			479			4			779	
Approach Delay, s/veh		65.2			66.8			33.0			60.6	
Approach LOS		E			E			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	27.0	23.5	4.6	44.9	0.0	50.5	27.0	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	22.5	19.0	5.0	35.5	5.0	36.5	22.5	18.0
Max Q Clear Time (g_c+I1), s	24.5	2.2	2.1	11.1	0.0	17.8	24.2	19.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.0	1.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	63.7
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	376	235	1	1	308	287	0	2	3	398	2	501
Future Volume (veh/h)	376	235	1	1	308	287	0	2	3	398	2	501
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	396	247	0	1	324	154	0	2	2	419	2	358
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	397	751	637	2	337	658	2	156	156	419	864	1086
Arrive On Green	0.22	0.40	0.00	0.00	0.18	0.18	0.00	0.18	0.18	0.23	0.46	0.46
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	396	247	0	1	324	154	0	0	4	419	2	358
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	22.2	9.1	0.0	0.1	17.2	6.3	0.0	0.0	0.2	23.5	0.1	9.2
Cycle Q Clear(g_c), s	22.2	9.1	0.0	0.1	17.2	6.3	0.0	0.0	0.2	23.5	0.1	9.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	397	751	637	2	337	658	2	0	312	419	864	1086
V/C Ratio(X)	1.00	0.33	0.00	0.41	0.96	0.23	0.00	0.00	0.01	1.00	0.00	0.33
Avail Cap(c_a), veh/h	397	751	637	89	337	658	89	0	312	419	864	1086
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	20.6	0.0	49.9	40.7	19.0	0.0	0.0	33.5	38.3	14.5	6.4
Incr Delay (d2), s/veh	44.3	0.3	0.0	84.1	39.0	0.2	0.0	0.0	0.1	44.2	0.0	0.2
Initial Q Delay(d3), s/veh	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	3.8	0.0	0.1	11.2	2.2	0.0	0.0	0.1	14.8	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	99.9	20.9	0.0	134.0	79.6	19.1	0.0	0.0	33.6	82.5	14.5	6.6
LnGrp LOS	F	C		F	E	B			C	F	B	A
Approach Vol, veh/h		643			479			4			779	
Approach Delay, s/veh		69.5			60.3			33.6			47.4	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.0	22.7	4.6	44.7	0.0	50.7	26.8	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	23.5	18.2	5.0	35.3	5.0	36.7	22.3	18.0
Max Q Clear Time (g_c+I1), s	25.5	2.2	2.1	11.1	0.0	11.2	24.2	19.2
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.0	1.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	58.1
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	497	94	13	568	34	49	9	9	50	10	25
Future Volume (veh/h)	43	497	94	13	568	34	49	9	9	50	10	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	529	100	14	604	36	52	10	10	53	11	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	691	131	32	783	663	312	59	31	269	52	67
Arrive On Green	0.05	0.45	0.45	0.02	0.42	0.42	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1781	1529	289	1781	1870	1585	942	413	218	738	363	464
Grp Volume(v), veh/h	46	0	629	14	604	36	72	0	0	91	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1818	1781	1870	1585	1573	0	0	1565	0	0
Q Serve(g_s), s	0.9	0.0	10.1	0.3	9.7	0.5	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.9	0.0	10.1	0.3	9.7	0.5	1.2	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.16	1.00		1.00	0.72		0.14	0.58		0.30
Lane Grp Cap(c), veh/h	92	0	822	32	783	663	403	0	0	387	0	0
V/C Ratio(X)	0.50	0.00	0.77	0.43	0.77	0.05	0.18	0.00	0.00	0.23	0.00	0.00
Avail Cap(c_a), veh/h	255	0	1224	255	1259	1067	943	0	0	943	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.1	0.0	8.0	17.0	8.7	6.0	13.3	0.0	0.0	13.5	0.0	0.0
Incr Delay (d2), s/veh	4.2	0.0	1.7	8.8	1.7	0.0	0.2	0.0	0.0	0.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.1	0.2	2.2	0.1	0.4	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	20.3	0.0	9.7	25.8	10.4	6.1	13.5	0.0	0.0	13.8	0.0	0.0
LnGrp LOS	C		A	C	B	A	B			B		
Approach Vol, veh/h		675			654			72			91	
Approach Delay, s/veh		10.4			10.5			13.5			13.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	5.1	20.3		9.5	6.3	19.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	23.5		18.0	5.0	23.5				
Max Q Clear Time (g_c+I1), s		3.2	2.3	12.1		3.7	2.9	11.7				
Green Ext Time (p_c), s		0.2	0.0	3.0		0.3	0.0	2.9				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			10.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	394	71	19	441	88	63	57	16	105	101	150
Future Volume (veh/h)	77	394	71	19	441	88	63	57	16	105	101	150
Initial Q (Qb), veh	0	0	0	0	0	0	1	0	0	0	4	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	81	415	64	20	464	76	66	60	11	111	106	121
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	104	530	82	41	470	77	95	461	85	142	275	285
Arrive On Green	0.06	0.33	0.33	0.02	0.30	0.30	0.05	0.30	0.30	0.08	0.33	0.33
Sat Flow, veh/h	1781	1582	244	1781	1567	257	1781	1538	282	1781	797	910
Grp Volume(v), veh/h	81	0	479	20	0	540	66	0	71	111	0	227
Grp Sat Flow(s),veh/h/ln	1781	0	1826	1781	0	1824	1781	0	1820	1781	0	1707
Q Serve(g_s), s	3.1	0.0	16.2	0.8	0.0	20.2	2.5	0.0	1.9	4.2	0.0	7.1
Cycle Q Clear(g_c), s	3.1	0.0	16.2	0.8	0.0	20.2	2.5	0.0	1.9	4.2	0.0	7.1
Prop In Lane	1.00		0.13	1.00		0.14	1.00		0.15	1.00		0.53
Lane Grp Cap(c), veh/h	104	0	611	41	0	546	95	0	545	142	0	558
V/C Ratio(X)	0.78	0.00	0.78	0.49	0.00	0.99	0.69	0.00	0.13	0.78	0.00	0.41
Avail Cap(c_a), veh/h	138	0	611	130	0	547	133	0	545	148	0	558
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	20.5	33.0	0.0	23.8	31.9	0.0	17.5	30.9	0.0	18.2
Incr Delay (d2), s/veh	18.4	0.0	6.6	8.6	0.0	35.4	8.6	0.0	0.5	22.7	0.0	2.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.6
%ile BackOfQ(50%),veh/ln	1.8	0.0	7.3	0.4	0.0	13.2	1.4	0.0	0.9	2.6	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	50.2	0.0	27.1	41.6	0.0	59.2	43.1	0.0	18.0	53.6	0.0	21.0
LnGrp LOS	D		C	D		E	D		B	D		C
Approach Vol, veh/h		560			560			137			338	
Approach Delay, s/veh		30.5			58.6			30.1			31.7	
Approach LOS		C			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	25.0	6.1	27.4	8.1	26.9	8.5	25.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.7	20.5	5.0	20.8	5.1	21.1	5.3	20.5				
Max Q Clear Time (g_c+I1), s	6.2	3.9	2.8	18.2	4.5	9.1	5.1	22.2				
Green Ext Time (p_c), s	0.0	0.3	0.0	0.8	0.0	1.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			40.6									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	472	319	8	1	267	422	1	8	4	354	5	291
Future Volume (veh/h)	472	319	8	1	267	422	1	8	4	354	5	291
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	530	358	8	1	300	305	1	9	1	398	6	223
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	463	820	695	2	337	285	2	306	34	347	708	600
Arrive On Green	0.26	0.44	0.44	0.00	0.18	0.18	0.00	0.19	0.19	0.19	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1654	184	1781	1870	1585
Grp Volume(v), veh/h	530	358	8	1	300	305	1	0	10	398	6	223
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1837	1781	1870	1585
Q Serve(g_s), s	26.0	13.3	0.3	0.1	15.7	18.0	0.1	0.0	0.4	19.5	0.2	10.2
Cycle Q Clear(g_c), s	26.0	13.3	0.3	0.1	15.7	18.0	0.1	0.0	0.4	19.5	0.2	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	463	820	695	2	337	285	2	0	340	347	708	600
V/C Ratio(X)	1.14	0.44	0.01	0.41	0.89	1.07	0.41	0.00	0.03	1.15	0.01	0.37
Avail Cap(c_a), veh/h	463	820	695	89	337	285	89	0	340	347	708	600
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.0	19.5	15.8	49.9	40.0	41.0	49.9	0.0	33.4	40.3	19.9	22.5
Incr Delay (d2), s/veh	87.8	0.4	0.0	84.1	24.3	72.8	84.1	0.0	0.2	94.0	0.0	1.8
Initial Q Delay(d3), s/veh	38.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	26.9	5.4	0.1	0.1	9.1	12.4	0.1	0.0	0.2	17.2	1.0	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	163.6	19.9	15.8	134.0	64.3	113.8	134.0	0.0	33.6	134.3	20.8	24.2
LnGrp LOS	F	B	B	F	E	F	F		C	F	C	C
Approach Vol, veh/h		896			606			11			627	
Approach Delay, s/veh		104.9			89.3			42.7			94.1	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	23.0	4.6	48.4	4.6	42.4	30.5	22.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	19.5	18.5	5.0	39.0	5.0	33.0	26.0	18.0
Max Q Clear Time (g_c+I1), s	21.5	2.4	2.1	15.3	2.1	12.2	28.0	20.0
Green Ext Time (p_c), s	0.0	0.0	0.0	1.9	0.0	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	97.0
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	472	319	8	1	267	422	1	8	4	354	5	291
Future Volume (veh/h)	472	319	8	1	267	422	1	8	4	354	5	291
Initial Q (Qb), veh	5	0	0	0	0	0	0	0	0	0	8	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	530	358	8	1	300	305	1	9	1	398	6	223
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	527	855	724	2	304	621	2	269	30	408	730	1088
Arrive On Green	0.30	0.46	0.46	0.00	0.16	0.16	0.00	0.16	0.16	0.23	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1654	184	1781	1870	1585
Grp Volume(v), veh/h	530	358	8	1	300	305	1	0	10	398	6	223
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1837	1781	1870	1585
Q Serve(g_s), s	35.5	15.4	0.3	0.1	19.2	17.4	0.1	0.0	0.6	26.6	0.2	6.2
Cycle Q Clear(g_c), s	35.5	15.4	0.3	0.1	19.2	17.4	0.1	0.0	0.6	26.6	0.2	6.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	527	855	724	2	304	621	2	0	299	408	730	1088
V/C Ratio(X)	1.01	0.42	0.01	0.41	0.99	0.49	0.41	0.00	0.03	0.97	0.01	0.21
Avail Cap(c_a), veh/h	527	855	724	74	304	621	74	0	299	408	730	1088
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	21.9	17.8	59.9	50.1	27.5	59.9	0.0	42.3	45.9	23.0	6.9
Incr Delay (d2), s/veh	40.6	0.3	0.0	84.5	47.9	0.6	84.5	0.0	0.2	37.8	0.0	0.4
Initial Q Delay(d3), s/veh	34.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
%ile BackOfQ(50%),veh/ln	25.8	6.5	0.1	0.1	12.7	6.4	0.1	0.0	0.3	15.6	1.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	117.0	22.2	17.8	144.4	98.1	28.1	144.4	0.0	42.5	83.8	23.9	7.3
LnGrp LOS	F	C	B	F	F	C	F		D	F	C	A
Approach Vol, veh/h		896			606			11			627	
Approach Delay, s/veh		78.3			62.9			51.8			56.0	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	24.0	4.7	59.3	4.7	51.3	40.0	24.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	27.5	19.5	5.0	50.0	5.0	42.0	35.5	19.5
Max Q Clear Time (g_c+I1), s	28.6	2.6	2.1	17.4	2.1	8.2	37.5	21.2
Green Ext Time (p_c), s	0.0	0.0	0.0	2.0	0.0	0.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	67.3
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	629	50	10	600	26	78	10	20	61	6	41
Future Volume (veh/h)	23	629	50	10	600	26	78	10	20	61	6	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	707	56	11	674	29	88	11	22	69	7	46
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	56	877	69	26	927	786	303	24	37	251	23	79
Arrive On Green	0.03	0.51	0.51	0.01	0.50	0.50	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	1710	135	1781	1870	1585	1130	191	293	838	181	617
Grp Volume(v), veh/h	26	0	763	11	674	29	121	0	0	122	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1846	1781	1870	1585	1614	0	0	1636	0	0
Q Serve(g_s), s	0.6	0.0	13.4	0.2	11.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	13.4	0.2	11.1	0.4	2.5	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		0.07	1.00		1.00	0.73		0.18	0.57		0.38
Lane Grp Cap(c), veh/h	56	0	947	26	927	786	365	0	0	353	0	0
V/C Ratio(X)	0.46	0.00	0.81	0.43	0.73	0.04	0.33	0.00	0.00	0.35	0.00	0.00
Avail Cap(c_a), veh/h	228	0	1533	228	1553	1316	875	0	0	879	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	18.6	0.0	7.9	19.1	7.8	5.1	16.0	0.0	0.0	16.0	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.0	1.7	10.9	1.1	0.0	0.5	0.0	0.0	0.6	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.7	0.2	2.3	0.1	0.9	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	24.5	0.0	9.6	30.0	8.9	5.1	16.5	0.0	0.0	16.6	0.0	0.0
LnGrp LOS	C		A	C	A	A	B			B		
Approach Vol, veh/h		789			714			121			122	
Approach Delay, s/veh		10.1			9.1			16.5			16.6	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	5.1	24.6		9.5	5.7	23.9				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.0	32.5		19.0	5.0	32.5				
Max Q Clear Time (g_c+I1), s		4.5	2.2	15.4		4.5	2.6	13.1				
Green Ext Time (p_c), s		0.5	0.0	4.6		0.5	0.0	4.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			10.6									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	426	168	61	391	117	142	169	44	73	125	75
Future Volume (veh/h)	160	426	168	61	391	117	142	169	44	73	125	75
Initial Q (Qb), veh	0	0	0	0	0	0	4	2	0	1	3	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	495	161	71	455	112	165	197	42	85	145	64
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	220	544	177	91	479	118	202	430	87	111	301	119
Arrive On Green	0.12	0.40	0.40	0.05	0.33	0.33	0.11	0.28	0.28	0.06	0.23	0.23
Sat Flow, veh/h	1781	1352	440	1781	1449	357	1781	1494	319	1781	1230	543
Grp Volume(v), veh/h	186	0	656	71	0	567	165	0	239	85	0	209
Grp Sat Flow(s),veh/h/ln	1781	0	1791	1781	0	1806	1781	0	1813	1781	0	1773
Q Serve(g_s), s	9.1	0.0	30.6	3.5	0.0	27.2	8.0	0.0	9.7	4.2	0.0	9.1
Cycle Q Clear(g_c), s	9.1	0.0	30.6	3.5	0.0	27.2	8.0	0.0	9.7	4.2	0.0	9.1
Prop In Lane	1.00		0.25	1.00		0.20	1.00		0.18	1.00		0.31
Lane Grp Cap(c), veh/h	220	0	722	91	0	597	202	0	510	111	0	411
V/C Ratio(X)	0.84	0.00	0.91	0.78	0.00	0.95	0.82	0.00	0.47	0.77	0.00	0.51
Avail Cap(c_a), veh/h	231	0	722	111	0	601	211	0	511	139	0	410
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	25.0	41.6	0.0	29.0	38.9	0.0	26.5	41.1	0.0	30.0
Incr Delay (d2), s/veh	23.1	0.0	15.5	24.5	0.0	24.9	20.7	0.0	3.1	17.8	0.0	4.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	15.2	0.0	0.2	2.5	0.0	0.8
%ile BackOfQ(50%),veh/ln	5.3	0.0	15.1	2.1	0.0	15.2	5.9	0.0	4.8	2.5	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.2	0.0	40.5	66.1	0.0	53.9	74.8	0.0	29.8	61.3	0.0	35.2
LnGrp LOS	E		D	E		D	E		C	E		D
Approach Vol, veh/h		842			638			404			294	
Approach Delay, s/veh		45.1			55.3			48.2			42.7	
Approach LOS		D			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	29.5	9.0	40.2	14.4	25.0	15.5	33.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.9	24.1	5.5	35.5	10.5	20.5	11.5	29.5				
Max Q Clear Time (g_c+I1), s	6.2	11.7	5.5	32.6	10.0	11.1	11.1	29.2				
Green Ext Time (p_c), s	0.0	1.1	0.0	1.2	0.0	0.8	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			48.3									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	254	1	1	332	309	0	2	3	428	2	541
Future Volume (veh/h)	406	254	1	1	332	309	0	2	3	428	2	541
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	427	267	0	1	349	177	0	2	2	451	2	400
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	426	793	672	2	349	295	2	146	146	429	845	716
Arrive On Green	0.24	0.42	0.00	0.00	0.19	0.19	0.00	0.17	0.17	0.24	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	427	267	0	1	349	177	0	0	4	451	2	400
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	26.3	10.5	0.0	0.1	20.5	11.3	0.0	0.0	0.2	26.5	0.1	20.4
Cycle Q Clear(g_c), s	26.3	10.5	0.0	0.1	20.5	11.3	0.0	0.0	0.2	26.5	0.1	20.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	426	793	672	2	349	295	2	0	292	429	845	716
V/C Ratio(X)	1.00	0.34	0.00	0.41	1.00	0.60	0.00	0.00	0.01	1.05	0.00	0.56
Avail Cap(c_a), veh/h	426	793	672	81	349	295	81	0	292	429	845	716
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	21.3	0.0	54.9	44.7	41.0	0.0	0.0	38.0	41.8	16.5	22.1
Incr Delay (d2), s/veh	44.3	0.2	0.0	84.3	48.5	3.3	0.0	0.0	0.1	57.5	0.0	1.0
Initial Q Delay(d3), s/veh	16.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.2	4.4	0.0	0.1	13.8	4.5	0.0	0.0	0.1	17.9	0.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	103.0	21.5	0.0	139.2	93.3	44.3	0.0	0.0	38.1	99.2	16.5	23.1
LnGrp LOS	F	C		F	F	D			D	F	B	C
Approach Vol, veh/h		694			527			4			853	
Approach Delay, s/veh		71.7			76.9			38.1			63.3	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	23.2	4.7	51.1	0.0	54.2	30.8	25.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	26.5	18.7	5.0	41.8	5.0	40.2	26.3	20.5
Max Q Clear Time (g_c+I1), s	28.5	2.2	2.1	12.5	0.0	22.4	28.3	22.5
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.0	1.3	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	69.5
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
1: Nord Ave & W East Ave

01/30/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	254	1	1	332	309	0	2	3	428	2	541
Future Volume (veh/h)	406	254	1	1	332	309	0	2	3	428	2	541
Initial Q (Qb), veh	2	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	427	267	0	1	349	177	0	2	2	451	2	400
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	438	808	685	2	351	700	1	139	139	453	849	1110
Arrive On Green	0.25	0.43	0.00	0.00	0.19	0.19	0.00	0.16	0.16	0.25	0.45	0.45
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	858	858	1781	1870	1585
Grp Volume(v), veh/h	427	267	0	1	349	177	0	0	4	451	2	400
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1716	1781	1870	1585
Q Serve(g_s), s	28.5	11.4	0.0	0.1	22.4	8.4	0.0	0.0	0.2	30.3	0.1	12.2
Cycle Q Clear(g_c), s	28.5	11.4	0.0	0.1	22.4	8.4	0.0	0.0	0.2	30.3	0.1	12.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	438	808	685	2	351	700	1	0	279	453	849	1110
V/C Ratio(X)	0.98	0.33	0.00	0.41	1.00	0.25	0.00	0.00	0.01	1.00	0.00	0.36
Avail Cap(c_a), veh/h	438	808	685	74	351	700	74	0	279	453	849	1110
HCM Platoon Ratio	1.00	1.00	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	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	22.6	0.0	59.9	48.7	21.1	0.0	0.0	42.2	44.7	17.9	7.2
Incr Delay (d2), s/veh	36.4	0.2	0.0	84.5	46.7	0.2	0.0	0.0	0.1	41.2	0.0	0.2
Initial Q Delay(d3), s/veh	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.6	4.8	0.0	0.1	14.6	3.0	0.0	0.0	0.1	18.0	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	87.6	22.8	0.0	144.4	95.4	21.2	0.0	0.0	42.3	85.9	17.9	7.4
LnGrp LOS	F	C		F	F	C			D	F	B	A
Approach Vol, veh/h		694			527			4			853	
Approach Delay, s/veh		62.7			70.6			42.3			48.9	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	35.0	24.0	4.7	56.3	0.0	59.0	34.0	27.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	30.5	19.5	5.0	47.0	5.0	45.0	29.5	22.5
Max Q Clear Time (g_c+I1), s	32.3	2.2	2.1	13.4	0.0	14.2	30.5	24.4
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.0	1.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	59.0
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
2: Nord Ave & W Lindo Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	556	105	15	586	82	55	10	10	53	11	26
Future Volume (veh/h)	45	556	105	15	586	82	55	10	10	53	11	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	591	112	16	623	87	59	11	11	56	12	28
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	736	139	36	841	712	299	53	29	258	47	62
Arrive On Green	0.05	0.48	0.48	0.02	0.45	0.45	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1781	1529	290	1781	1870	1585	977	392	215	775	347	462
Grp Volume(v), veh/h	48	0	703	16	623	87	81	0	0	96	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1818	1781	1870	1585	1584	0	0	1583	0	0
Q Serve(g_s), s	1.0	0.0	12.1	0.3	10.2	1.2	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	1.0	0.0	12.1	0.3	10.2	1.2	1.5	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		0.16	1.00		1.00	0.73		0.14	0.58		0.29
Lane Grp Cap(c), veh/h	94	0	875	36	841	712	381	0	0	367	0	0
V/C Ratio(X)	0.51	0.00	0.80	0.44	0.74	0.12	0.21	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	240	0	1346	240	1385	1173	926	0	0	929	0	0
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.1	0.0	8.1	18.0	8.4	6.0	14.6	0.0	0.0	14.7	0.0	0.0
Incr Delay (d2), s/veh	4.3	0.0	2.1	8.1	1.3	0.1	0.3	0.0	0.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.5	0.2	2.3	0.2	0.6	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	21.4	0.0	10.2	26.0	9.8	6.0	14.8	0.0	0.0	15.1	0.0	0.0
LnGrp LOS	C		B	C	A	A	B			B		
Approach Vol, veh/h		751			726			81			96	
Approach Delay, s/veh		10.9			9.7			14.8			15.1	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	5.3	22.4		9.5	6.5	21.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.0	27.5		19.0	5.0	27.5				
Max Q Clear Time (g_c+I1), s		3.5	2.3	14.1		3.9	3.0	12.2				
Green Ext Time (p_c), s		0.3	0.0	3.7		0.4	0.0	3.6				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			10.8									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
3: Nord Ave & W 8th Ave

01/29/2024

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	422	76	20	471	95	68	61	17	113	109	161
Future Volume (veh/h)	83	422	76	20	471	95	68	61	17	113	109	161
Initial Q (Qb), veh	0	0	0	0	0	0	1	0	0	0	4	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	87	444	69	21	496	83	72	64	12	119	115	132
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	586	91	42	518	87	96	425	80	151	260	268
Arrive On Green	0.06	0.37	0.37	0.02	0.33	0.33	0.05	0.28	0.28	0.08	0.31	0.31
Sat Flow, veh/h	1781	1581	246	1781	1562	261	1781	1532	287	1781	794	912
Grp Volume(v), veh/h	87	0	513	21	0	579	72	0	76	119	0	247
Grp Sat Flow(s),veh/h/ln	1781	0	1826	1781	0	1823	1781	0	1819	1781	0	1706
Q Serve(g_s), s	3.6	0.0	18.2	0.9	0.0	23.0	2.9	0.0	2.3	4.8	0.0	8.6
Cycle Q Clear(g_c), s	3.6	0.0	18.2	0.9	0.0	23.0	2.9	0.0	2.3	4.8	0.0	8.6
Prop In Lane	1.00		0.13	1.00		0.14	1.00		0.16	1.00		0.53
Lane Grp Cap(c), veh/h	111	0	677	42	0	605	96	0	505	151	0	528
V/C Ratio(X)	0.78	0.00	0.76	0.50	0.00	0.96	0.75	0.00	0.15	0.79	0.00	0.47
Avail Cap(c_a), veh/h	133	0	677	121	0	605	142	0	505	157	0	529
HCM Platoon Ratio	1.00	1.00	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	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.1	0.0	20.4	35.6	0.0	24.2	34.5	0.0	20.1	33.2	0.0	20.9
Incr Delay (d2), s/veh	21.7	0.0	5.0	8.8	0.0	26.4	11.6	0.0	0.6	22.6	0.0	3.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.8
%ile BackOfQ(50%),veh/ln	2.1	0.0	7.9	0.5	0.0	13.4	1.7	0.0	1.1	3.0	0.0	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	55.8	0.0	25.3	44.4	0.0	50.5	49.3	0.0	20.7	55.8	0.0	24.6
LnGrp LOS	E		C	D		D	D		C	E		C
Approach Vol, veh/h		600			600			148			366	
Approach Delay, s/veh		29.7			50.3			34.6			34.8	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	25.0	6.3	31.9	8.4	27.4	9.1	29.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	6.5	20.5	5.0	25.0	5.9	21.1	5.5	24.5				
Max Q Clear Time (g_c+I1), s	6.8	4.3	2.9	20.2	4.9	10.6	5.6	25.0				
Green Ext Time (p_c), s	0.0	0.3	0.0	1.4	0.0	1.1	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			38.4									
HCM 6th LOS			D									