EXHIBIT K

ENVIRONMENTAL ASSESEMENT

APPENDIX G/INITIAL STUDY FOR A NEGATIVE DECLARATION

Environmental Checklist Form for:
EA No. P18-02233

1.	**Project title:** Environmental Assessment Application No. P18-02233
2.	**Lead agency name and address:** City of Fresno Development and Resource Management Department 2600 Fresno Street Fresno, CA 93721
3.	**Contact person and phone number:** Jarred Olsen, Planner III City of Fresno Development and Resource Management Dept. (559) 621-8277
4.	**Project location:** 2999 South Orange Avenue ±3.92 acres of property located on the northeast corner of East North and South Orange Avenues Site Latitude: 36°41’34.39” N Site Longitude: -119°45’44.18” W Mount Diablo Base & Meridian, Township 14S, Range 20E Section 23 – California Assessor’s Parcel Number: 487-140-32
5.	**Project sponsor's name and address:** Neil Angelillo Kettleman 99 LP 1155 W. Shaw Road, Suite #104 Fresno, CA,93711
6.	**General & Community plan land use designation:** Heavy Industrial
7.	**Zoning:** Heavy Industrial

8.	**Description of project:** Environmental Assessment No. P18-02233 was filed by Chris Ward, on behalf of Kettleman 99 LP. The applicant proposes to construct 13,325 gross square feet (sf) of commercial, retail, fast food, and fuel uses on the 3.92-acre project site. The development would include two phases: development of a 3,062 gross sf 7-Eleven building with 12 gas pumps and a 2,263 gross sf Panda Express restaurant building during Phase 1, and a 5,000 gross sf future retail building and a 3,000 gross sf future fast food building during Phase 2. The Panda Express restaurant, the future fast food building, and the future retail building would include drive-throughs. The project would also include development of the associated infrastructure, parking, and circulation improvements. <u>Entitlements</u> Environmental Assessment No. P18-02233 would require a Conditional Use Permit. Conditional Use Permits are required for Drive-Through Facilities and Alcohol Sales within the Heavy Industrial zoning designation.
9.	**Surrounding land uses and setting:**

	Planned Land Use	Existing Zoning	Existing Land Use
North	Heavy Industrial	**IH** *(Heavy Industrial)*	East Bay Tire Company industrial building
East	Heavy Industrial	**IH** *(Heavy Industrial)*	State Route (SR) 99 off-ramp
South	Heavy Industrial	**IH** *(Heavy Industrial)*	Vacant industrial lot
West	Heavy Industrial	**IH** *(Heavy Industrial)*	Coast Aluminum and Architecture, Inc. industrial building

10.	**Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):** Development and Resource Management Department, Building & Safety Services Division; Department of Public Works; Department of Public Utilities; County of Fresno, Department of Community Health; County of Fresno, Department of Public Works and Planning; City of Fresno Fire Department; Fresno Metropolitan Flood Control District; and San Joaquin Valley Air Pollution Control District.
11.	**Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code (PRC) Section 21080.3.1? If so, has consultation begun?** The State requires lead agencies to consider the potential effects of proposed projects and consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Resources through the California Environmental Quality Act (CEQA) Guidelines. Pursuant to PRC Section 21080.3.1, the lead agency shall begin

	consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed project. Such significant cultural resources are either sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe which is either on or eligible for inclusion in the California Historic Register or local historic register, or, the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC Section 21074(a)(1-2)). According to the most recent census data, California is home to 109 currently recognized Indian tribes. Tribes in California currently have nearly 100 separate reservations or Rancherias. Fresno County has a number of Rancherias such as Table Mountain Rancheria, Millerton Rancheria, Big Sandy Rancheria, Cold Springs Rancheria, and Squaw Valley Rancheria. These Rancherias are not located within the city limits. Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See PRC Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality. Pursuant to Assembly Bill 52 (AB 52), the Table Mountain Rancheria Tribe and the Dumna Wo Wah were invited to consult under AB 52. The City of Fresno mailed notices of the proposed project to each of these tribes on October 26, 2018 which included the required 30-day time period for tribes to request consultation. Under invitations to consult AB 52, one of the two contacted tribes responded. The Table Mountain Rancheria of California declined consultation via mail on January 8, 2019.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

	Aesthetics		Agriculture and Forestry Resources		Air Quality
	Biological Resources		Cultural Resources		Energy
	Geology/Soils		Greenhouse Gas Emissions		Hazards & Hazardous Materials
	Hydrology/Water Quality		Land Use/Planning		Mineral Resources
	Noise		Population /Housing		Public Services
	Recreation		Transportation		Tribal Cultural Resources
	Utilities/Service Systems		Wildfire		Mandatory Findings of Significance

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

___	I find that the proposed project could not have a significant effect on the environment. A NEGATIVE DECLARATION will be prepared.
X	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
___	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
___	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
___	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

April 26, 2019

Jarred Olsen, Planner III — Date

EVALUATION OF ADDITIONAL ENVIRONMENTAL IMPACTS NOT ASSESSED IN THE MASTER ENVIRONMENTAL IMPACT REPORT (MEIR):

1. For purposes of this Initial Study, the following answers have the corresponding meanings:

   a. "No Impact" means the subsequent project will not cause any additional significant effect related to the threshold under consideration which was not previously examined in the MEIR.

   b. "Less Than Significant Impact" means there is an impact related to the threshold under consideration that was not previously examined in the MEIR, but that impact is less than significant;

   c. "Less Than Significant with Mitigation Incorporation" means there is a potentially significant impact related to the threshold under consideration that was not previously examined in the MEIR, however, with the mitigation incorporated into the project, the impact is less than significant.

   d. "Potentially Significant Impact" means there is an additional potentially significant effect related to the threshold under consideration that was not previously examined in the MEIR.

2. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

3. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

4. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

5. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

6. Earlier analyses may be used where, pursuant to the tiering, program EIR or MEIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a. Earlier Analysis Used. Identify and state where they are available for review.

   b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in the MEIR or another earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c. Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

7. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

8. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

9. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

10. The explanation of each issue should identify:

a. The significance criteria or threshold, if any, used to evaluate each question; and

b. The mitigation measure identified, if any, to reduce the impact to less than significance.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock out-croppings, and historic buildings within a state scenic highway?			X	
c) In nonurbanized areas, substantially degrade the existing visual character or quality of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

The site is located within an area undergoing continued growth in development. Areas to the north, west, and south have been developed and continue to be developed with industrial uses, while the subject property is vacant. Property to the north has been developed with an East Bay Tire Company industrial building. To the east lies a SR 99 off-ramp. Property to the south is currently vacant. Property to the north has been developed with a Coast Aluminum Architecture, Inc. industrial building. The existing topography of the subject property is nearly flat, with elevations ranging from 285 to 288 feet above mean sea level.

A scenic vista is a viewpoint that provides a distant view of highly valued natural or man-made landscape features for the benefit of the general public. Typical scenic vistas are locations where views of rivers, hillsides, and open space areas can be obtained as well as locations where valued urban landscape features can be viewed in the distance.

The Fresno General Plan MEIR provides and recognizes that the City has not identified or designated scenic vistas within its General Plan. Although no scenic vista has been designated, it is acknowledged that scenic vistas within the Planning Area could provide distant views of natural landscape features such as the San Joaquin River along the northern boundary of the Planning Area and the foothills of the Sierra Nevada Mountain Range. The River bluffs provide distant views of the San Joaquin River as well as areas north of the River. However, the majority of these views are from private property. There are limited views of the San Joaquin River from Weber Avenue, Milburn Avenue, McCampbell Drive, Valentine Avenue, Palm Avenue, State Route 41, Friant Road, and Woodward Park. There are various locations throughout the eastern portion of the Planning Area that provide views of the Sierra Nevada foothills that are located northeast and east of the Planning Area. These distant views of the Sierra Nevada foothills are impeded many days during the year by the poor air quality in the Fresno region. Distant views of man-made landscape features include the Downtown Fresno buildings that provide a unique skyline.

Scenic resources include landscapes and features that are visually or aesthetically pleasing. They contribute positively to a distinct community or region. These resources produce a visual benefit upon communities. The scenic resources within the Planning Area include landscaped open spaces such as parks and golf courses. Additional scenic resources within the Planning Area include areas along the San Joaquin River due to the topographic variation in the relatively flat San Joaquin Valley. The River bluffs provide a unique geological feature in the San Joaquin Valley. Historic structures in Downtown Fresno buildings also represent scenic resources because they provide a unique skyline.

Although superseded by the Fresno General Plan (§15-104-B-4.b of the FMC) the Bullard Community Plan previously depicted six vista points along the bluffs overlooking the San Joaquin River bottom and environs. Two of the vista points within Riverview Estates were recognized as having either been developed or committed to development through tentative map approval, prior to the establishment of the Bullard Community Plan standards. As a result, the two committed sites were considered minimal facilities with potential access and other problems. To avoid such future problems, standards were prepared within the Bullard Community Plan to guide development of the four remaining vista points.

The purpose of the vista points was to provide limited bluff access to non-area residents and to offer panoramic views of the river bluffs and river bottom. Such views were considered best be enjoyed as part of a passive recreational experience where one can stop, relax and absorb the natural beauty of the river environment. As such, the vista points were recommended to be designed to accommodate local residents who walk, non-area residents who bike, and the driving public.

None of the six vista point locations shown on the Bullard Community Plan Map are located in the nearby vicinity of the subject property. Each vista point is located over 10 miles to the north of the project site. As such, impacts related to these vista points would not occur.

Given the site's distance from the San Joaquin River (i.e., approximately 12 miles northwest of the site), the proposed project will not interfere with public views of the San Joaquin River environs. Furthermore, as there are no designated public or scenic vistas on or adjacent to the subject property, there is no potential for adverse effect on a scenic vista.

Furthermore, the Fresno General Plan MEIR recognizes and acknowledges that poor air quality reduces existing views within the City of Fresno sphere of influence as a whole, and therefore finds that a less than significant impact will result to views of highly valued features such as the Sierra Nevada foothills from future development on and in the vicinity of the subject property.

Finally, the project site is not within the vicinity of a State designated scenic highway.

The project will not damage nor will it degrade the visual character or quality of the subject site and its surroundings, given that the project site is in an area within close proximity to existing industrial development; and, in an area generally planned for and developed with industrial uses at comparable intensities.

Future development of the site will create a new source of substantial light or glare within the area. However, given that the project site is within an area which has been previously developed or is currently being developed with urban and industrial uses, which already affect day and night time views in the project area to a degree equal or greater than the proposed project, no significant impact will occur. The project would be subject to the applicable mitigation measures pertaining to light and glare included in in MEIR SCH No. 2012111015.

Furthermore, through the entitlement process, staff will ensure that lights are located in areas that will minimize light sources to the neighboring properties in accordance with the mitigation measures of the MEIR.

In conclusion, with MEIR mitigation measures incorporated, the project will not result in any aesthetic resource impacts beyond those analyzed in MEIR SCH No. 2012111015. Therefore, the project will have a less-than-significant impact on aesthetics.

Mitigation Measures

1. The proposed project shall implement and incorporate, as applicable, the aesthetics related mitigation measures as identified in the attached MEIR SCH No. 2012111015 Fresno General Plan Mitigation Monitoring Checklist dated March 2019.

ENVIRONMENTAL ISSUES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
II. AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farm-land), as shown on the maps prepared pursuant to the Farmland Mapping and Monito-ring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FORESTRY RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?				X

Based upon the upon the 2016 Rural Land Mapping Edition: Fresno County Important Farmland Map of the State of California Department of Conservation, the project site is designated "Urban and Built-Up Land". The area to the south of the site, opposite North Avenue, is designated as "Farmland of Local Importance". The area to the north, east, and west of the site is also designated "Urban and Built-Up Land".

"Farmland of Local Importance" is defined as farmland within Fresno County that does not meet the definitions of Prime, Statewide, or Unique. This includes land that is or has been used for irrigated pasture, dryland farming, confined livestock and dairy, poultry facilities, aquaculture and grazing land.

The subject property is vacant and is currently not utilized for rural residential or agricultural purposes.

The Fresno General Plan MEIR analyzed "project specific" impacts associated with future development within the Planning Area (Sphere of Influence) as well as the cumulative impacts factored from future development in areas outside of the Planning Area. The MEIR identifies locations within the Planning Area that have been designated as Prime Farmland, Unique Farmland, and Farmland of Statewide Importance through the Farmland Mapping and Monitoring Program (FMMP) of the California Department of Conservation. The analysis of impacts contained within the MEIR acknowledges that Fresno General Plan implementation anticipates all of the FMMP-designated farmland within the Planning Area being converted to uses other than agriculture.

Furthermore, the MEIR acknowledges that the anticipated conversion is a significant impact on agricultural resources.

To reduce potential project-specific and cumulative impacts on agricultural uses, the General Plan incorporates objectives and policies, which include but are not limited to the following:

G-5 Objective: While recognizing that the County of Fresno retains the primary responsibility for agricultural land use policies and the protection and advancement of farming operations, the City of Fresno will support efforts to preserve agricultural land outside of the area planned for urbanization and outside of the City's public service delivery capacity by being responsible in its land use plans, public service delivery plans, and development policies.

G-5-b. Policy: Plan for the location and intensity of urban development in a manner that efficiently utilizes land area located within the planned urban boundary, including the North and Southeast Growth Areas, while promoting compatibility with agricultural uses located outside of the planned urban area.

G-5-f. Policy: Oppose lot splits and development proposals in unincorporated areas within and outside the City General Plan boundary when these proposals would do any of the following:

- Make it difficult or infeasible to implement the general plan; or,

- Contribute to the premature conversion of agricultural, open space, or grazing lands; or constitute a detriment to the management of resources and/or facilities important to the metropolitan area (such as air quality, water quantity and quality, traffic circulation, and riparian habitat).

However, the MEIR recognizes that despite implementation of the objectives and policies of the Fresno General Plan, project and cumulative impacts on agricultural resources will remain significant; and, that no feasible measures in addition to the objectives and policies of the Fresno General Plan are available.

In 2014, through passage of Council Resolution No. 2014-225, the City of Fresno adopted Findings of Fact related to Significant and Unavoidable Effects as well as Statements of Overriding Considerations in order to certify MEIR SCH No. 2012111015 for purposes of adoption of the Fresno General Plan. Section 15093 of the California Environmental Quality Act requires the lead agency to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve the project.

The adopted Statements of Overriding Considerations for the MEIR addressed Findings of Significant Unavoidable Impacts within the categories/areas of Agricultural Resources; citing specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers as project goals, each and all of which were deemed and considered by the Fresno City Council to be benefits, which outweighed the unavoidable adverse environmental effects attributed to development occurring within the City of Fresno Sphere of Influence (SOI), consistent with the land uses, densities, and intensities set forth in the Fresno General Plan.

The project site is and continues to be further encompassed with urban development. The project site is a logical expansion for purposes of orderly development within existing City limits. Agricultural uses are not permitted within the existing Heavy Industrial zone district. Additionally, the project site is not designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Given these circumstances, the proposed project is consistent with the goals, objective and policies of the Fresno General Plan as referenced herein above; and, will not result in the premature conversion of agricultural lands or constitute a detriment to the management of agricultural resources and/or facilities important to the metropolitan area.

The subject property is not subject to a Williamson Act agricultural land conservation contract. Therefore, the proposed project on the subject site will not affect existing agriculturally zoned or Williamson Act contract parcels.

The proposed project will not conflict with any forest land or Timberland Production or result in any loss of forest land.

As discussed in Impact AG-1 of the MEIR, future development in accordance with the Fresno General Plan would result in the conversion of farmland to a non-agricultural use. Except for direct conversion, the implementation of project development would not result in other changes in the existing environment that would impact agricultural land outside of the project boundary or Planning Area. In addition, development in accordance with the General Plan would not impact forest land as discussed in Section 7.2.1 of this Draft Master EIR. Therefore, the project would result in no impact on farmland or forest land involving other changes in the existing environment which fall outside of the scope of the analyses contained within the MEIR.

Therefore, the proposed project will not have an impact on converting farmland, Williamson Act contracts or forestland. In conclusion, the proposed project would not result in any agriculture and forestry resource environmental impacts beyond those analyzed in the MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan (*e.g.*, by having potential emissions of regulated criterion pollutants which exceed the San Joaquin Valley Air Pollution Control Districts (SJVAPCD) adopted thresholds for these pollutants)?			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?			X	

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?				X

Setting

The subject site is located in the City of Fresno and within the San Joaquin Valley Air Basin (SJVAB). This region has had chronic non-attainment of federal and state clean air standards for ozone/oxidants and particulate matter due to a combination of topography and climate. The San Joaquin Valley (Valley) is hemmed in on three sides by mountain ranges, with prevailing winds carrying pollutants and pollutant precursors from urbanized areas to the north (and in turn contributing pollutants and precursors to downwind air basins). The Mediterranean climate of this region, with a high number of sunny days and little or no measurable precipitation for several months of the year, fosters photochemical reactions in the atmosphere, creating ozone and particulate matter. Regional factors affect the accumulation and dispersion of air pollutants within the SJVAB.

Air pollutant emissions overall are fairly constant throughout the year, yet the concentrations of pollutants in the air vary from day to day and even hour to hour. This variability is due to complex interactions of weather, climate, and topography. These factors affect the ability of the atmosphere to disperse pollutants. Conditions that move and mix the atmosphere help disperse pollutants, while conditions that cause the atmosphere to stagnate allow pollutants to concentrate. Local climatological effects, including topography, wind speed and direction, temperature, inversion layers, precipitation, and fog can exacerbate the air quality problem in the SJVAB.

The SJVAB is approximately 250 miles long and averages 35 miles wide, and is the second largest air basin in the state. The SJVAB is defined by the Sierra Nevada in the east (8,000 to 14,000 feet in elevation), the Coast Ranges in the west (averaging 3,000 feet in elevation), and the Tehachapi mountains in the south (6,000 to 8,000 feet in elevation). The Valley is basically flat with a slight downward gradient to the northwest. The Valley opens to the sea at the Carquinez Straits where the San Joaquin-Sacramento Delta empties into San Francisco Bay. The Valley, thus, could be considered a “bowl” open only to the north.

During the summer, wind speed and direction data indicate that summer wind usually originates at the north end of the Valley and flows in a south-southeasterly direction through the Valley, through Tehachapi pass, into the Southeast Desert Air Basin. In addition, the Altamont Pass also serves as a funnel for pollutant transport from the San Francisco Bay Area Air Basin into the region.

During the winter, wind speed and direction data indicate that wind occasionally originates from the south end of the Valley and flows in a north-northwesterly direction. Also during the winter months, the Valley generally experiences light, variable winds (less than 10 mph). Low wind speeds, combined with low inversion layers in the winter, create a climate conducive to high carbon monoxide (CO) and particulate matter (PM10 and PM2.5) concentrations. The SJVAB has an “Inland Mediterranean” climate averaging over 260 sunny days per year. The Valley floor is characterized by warm, dry summers and cooler winters. For the entire Valley, high daily temperature readings in summer average 95ºF. Temperatures below freezing are unusual. Average high temperatures in the winter are in the 50s, but highs in the 30s and 40s can occur on days with persistent fog and low cloudiness. The average daily low temperature is 45ºF.

The vertical dispersion of air pollutants in the Valley is limited by the presence of persistent temperature inversions. Solar energy heats up the Earth’s surface, which in turn radiates heat and warms the lower atmosphere. Therefore, as altitude increases, the air temperature usually decreases due to increasing distance from the source of heat. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. Inversions can exist at the surface or at any height above the ground, and tend to act as a lid on the Valley, holding in the pollutants that are generated here.

Regulations

The San Joaquin Valley Air Pollution Control District (SJVAPCD) is the local regional jurisdictional entity charged with attainment planning, rulemaking, rule enforcement, and monitoring under Federal and State Clean Air Acts and Clean Air Act Amendments.

To aid in evaluating potentially significant construction and/or operational impacts of a project, SJVAPCD has prepared an advisory document, the Guide for Assessing and Mitigating Air Quality Impacts (GAMAQI), which contains standard procedures for addressing air quality in CEQA documents. GAMAQI presents a three-tiered approach to air quality analysis. The Small Project Analysis Level (SPAL) is first used to screen the project for potentially significant impacts. A project that meets the screening criteria at this level requires no further analysis and air quality impacts of the project may be deemed less than significant. If a project does not meet all the criteria at this screening level, additional screening is recommended at the Cursory Analysis Level and, if warranted, the Full Analysis Level. For heavy industrial uses, the threshold is 920,000 sf units. Given that the project related applications have been filed to facilitate the creation and development of 13,325 sf of industrial uses, the proposed project is considered to have less than significant impacts pertaining to air emissions and is excluded from quantifying criteria pollutant emissions for CEQA purposes.

It is noted that an Air Quality Technical Memorandum was completed for the proposed project in order to analyze criteria air pollutants and toxic air contaminants (TACs) associated with construction and operation of the project. The Memorandum is included as Appendix A of this document.

SJVAPCD Regulation VIII mandates requirements for any type of ground moving activity and would be adhered to during construction; however, during construction, air quality impacts would be less than SJVAPCD thresholds for non-attainment pollutants and operation of the project would not result in impacts to air quality standards for criteria pollutants.

The SJVAPCD accounts for cumulative impacts to air quality in its GAMAQI. The SJVAPCD considered basin-wide cumulative impacts to air quality when developing its significance thresholds. The SJVAPCD’s air quality significance thresholds represent the maximum emissions from a project that are not expected to conflict with the SJVAPCD's air quality plans, and is not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard. These are developed based on the ambient concentrations of the pollutant for each source. Because the project would not exceed the air quality significance thresholds on the project-level, and would not otherwise conflict with the SJVAPCD's air quality plans, the cumulative emissions would not be a significant contribution to a cumulative impact.

The proposed project would comply with the SJVAPCD's Regulation VIII dust control requirements during any proposed construction (including Rules 8011, 8031, 8041, and 8071). Compliance with this regulation would reduce the potential for significant localized PM10 impacts to less than significant levels.

<u>Project</u>

An Air Quality Technical Memorandum was prepared for the proposed project (Stantec, 2018). See Appendix A. As discussed in the Memorandum, the project's construction emissions would not exceed the SJVAPCD's criteria pollutant thresholds. The operational emissions would also not exceed the SJVAPCD's criteria pollutant thresholds. Based on the results, construction and operation of the proposed project would not result in any significant impacts to air quality from a regional or localized perspective.

Further, the SJVAPCD recommends that a screening analysis be performed to determine if a refined Health Risk Assessment (HRA) should be performed. The District's recommended method for screening risks is by using its prioritization calculator based on the California Air Pollution Control Officers Facility Prioritization Guidelines (August 2016). The prioritization calculator will provide a score based on the emission potency method. The prioritization score is an indicator of a facility's potential risk. Scores of 10 or greater indicate that a refined HRA should be prepared because there is the potential for a significant health risk. Scores less than 10 indicate that the project's TAC emissions are not a high risk.

The various TACs that would be emitted from the project include: Benzene, Toluene, and Xylene from the gasoline dispensing facility and diesel engine exhaust from delivery vehicles to the project site. These TACs, in significant quantities, are known to the State of California to cause developmental and reproductive harm. According to the Air Quality Technical Memorandum, the maximum prioritization score total for the proposed project is 2.51 to the nearest worksite receptor. This is less than the SJVAPCD recommended screening threshold of 10 for conducting a refined HRA. The maximum prioritization score for the nearest residential receptor is 0.00251. Based on the score of 2.51, the proposed project would not result in a significant health risk and does not require a refined HRA.

District Rule 9510 was adopted to reduce the impact of NOx and provide emission reductions needed by the SJVAPCD to demonstrate attainment of the federal PM10 standard and contributed reductions that assist in attaining federal ozone standards. Rule 9510 also contributes toward attainment of state standards for these pollutants. The rule places application and emission reduction requirements on development projects meeting applicability criteria in order to reduce emissions through onsite mitigation, offsite SJVAPCD-administered projects, or a combination of the two. Compliance with SJVAPCD Rule 9510 reduces the emissions impacts through incorporation of onsite measures as well as payment of an offsite fee that funds emission reduction projects in the Air Basin. The emissions analysis for Rule 9510 is detailed and is dependent on the exact project design that is expected to be constructed or installed. Compliance with Rule 9510 is separate from the CEQA process, though the control measures used to comply with Rule 9510 may be used to mitigate significant air quality impacts.

As noted above, the SJVAPCD reviewed and approved the AIA application for the proposed project. The SJVAPCD determined that the mitigated baseline emissions for construction and operation will be less than two tons NOx per year and two tons PM10 per year. Therefore, pursuant to district Rule 9510, Section 4.3, the project is exempt from the requirements of Section 6.0 (General Mitigation Requirements) and Section 7.0 (Off-site Emission Reduction Fee Calculations and Fee Schedules) of the rule. As such, the SJVAPCD determined that the project complies with emission reduction requirements of District Rule 9510 and is not subject to payment of off-site fees.

The proposed use, if approved, will be allowed on the subject site and will not expose sensitive receptors to substantial pollutant concentrations. The project is not proposing a use which will create objectionable odors more obnoxious than the current surrounding non-residential uses. Decomposition of biological materials, such as food waste and other trash, could create objectionable odors if not properly contained and handled. The proposed project would provide waste receptacles throughout the project site and would utilize outdoor trash dumpsters with lids, which would be picked up regularly during normal solid waste collection operating hours within the area. The dumpster lids are intended to contain odors emanating from the dumpsters. The dumpsters would be stored in screened areas for further protection from potential objectionable odors. The garbage collected on-site and stored in the outdoor dumpsters would not be on-site long enough to cause substantial odors. Thus, the outdoor, enclosed, and covered trash dumpsters that would be picked up regularly would provide proper containment and handling of the trash generated on-site. Therefore, there will be no impact related to odors.

The growth projections used for the Fresno General Plan assume that growth in population, vehicle use and other source categories will occur at historically robust rates that are consistent with the rates used to develop the SJVAPCD's attainment plans. In other words, the amount of growth predicted for the General Plan is accommodated by the SJVAPCD's attainment plan and would allow the air basin to attain the 8-hour ozone standard by the 2023 attainment date. Future development on the subject property is required to comply with these rules and regulations providing additional support for the conclusion that it will not interfere or obstruct with the application of the attainment plans.

Therefore, compliance with all of the above SJVAPCD Rules, Fresno General Plan policies and MEIR mitigation measures results in a less than significant impact on air quality with respect to air quality plans and standards and cumulative increases in criteria pollutants.

The proposed project will comply with the Resource Conservation Element of the Fresno General Plan and the Goals, Policies and Objectives of the Regional Transportation Plan adopted by the Fresno Council of Fresno County Governments; therefore, the project will not conflict with or obstruct an applicable air quality plan.

In conclusion, the proposed project would not result in any air quality environmental impacts beyond those analyzed in the MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X	
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			X	

The proposed project will not directly affect any sensitive, special status, or candidate species, nor would it modify any habitat that supports them.

Riparian habitat or any other sensitive natural community identified by the California Department of Fish and Game or the US Fish and Wildlife Service are not located on the subject property. In addition, no federally protected wetlands are located on the subject site. Therefore, there would be no impacts to riparian species or habitat or other sensitive wetland communities.

The project site is generally vacant only containing grasses or shrubs, which based on its location, do not provide suitable habitat for any special-status plant species and limited habitat for special-status wildlife species. A few landscape trees are also located at the corner of E. North Avenue and S. Orange Avenue.

Wildlife species that often occur within vacant fields include gophers, California ground squirrels, mourning dove, mockingbird, white-crowned sparrows, and ravens. Other wildlife that would be expected to occur within orchards would be similar to those occurring in adjacent ruderal habitats or agricultural fields.

Mammal species may also occur within intermittent fallow agricultural lands and on lands with broken topography similar to portions of the subject property. These mammals could include: deer mice, house mice, pocket gopher and California ground squirrels. These species would occur in fluctuating numbers depending on the available cover in the individual fields. California ground squirrels are sometimes known to burrow complexes at the margins or within areas of some fields where annual disking may not reach. Other small mammals likely to occur from time to time may include black-tailed hares and cottontail rabbits.

The presence of birds and small mammals is an attractant to both foraging raptors, such as hawks and owls, and mammalian predators. Mammalian predators occurring on the site could include raccoons, coyotes, and red foxes, as these species are tolerant of human and other disturbance. Various species of bat may also forage over portions of the subject site for flying insects.

A number of special status species, such as San Joaquin kit fox, American Badger Western burrowing owl, Swainson hawk, tricolored blackbird, California horned lark, pallid bat, hoary bat, and western mastiff bat have some potential as resident seasonal or transient inhabitant of habitats such as those which may be found on the site.

The federally endangered and California threatened San Joaquin kit fox once occurred throughout much of the San Joaquin Valley, but this species favored areas of alkali sink scrub and alkali grassland throughout the San Joaquin Valley and Tulare Basin, as well as areas further west. The low foothills of the Sierra Nevada at the eastern edge of the San Joaquin Valley is considered at the margin of their natural range.

The project site may provide marginal habitat for American badgers in the form of temporary ruderal grasslands. This species is known to occur within areas with friable soils which support California ground squirrels and it prefers open habitats (herbaceous growth, shrubs or forest). Typically, loss of linkages to large tracks of open grassland minimizes the potential presence of this species. Large tracks of open grassland are not located in the project vicinity. Additionally, there are only two documented occurrences of American badger within the City of Fresno, and the closest occurrence to the project site is located 7.6 miles to the northeast. It is highly unlikely that the project site is used by American badger.

The burrowing owl is a small, terrestrial owl of open prairie and grassland habitats. It inhabits relatively flat dry open grasslands where tree and shrub canopies provide minimal cover. This species is found in close association with California ground squirrels, using the abandoned burrows of these squirrels for shelter, roosting, and nesting. Burrowing owls are colonially nesting raptors, and colony size is indicative of habitat quality. It is not uncommon to find burrowing owls in developed and cultivated areas. The project site provides marginal habitat for this species in the form of temporary ruderal grasslands that support California ground squirrels.

The Swainson hawk requires a supply of small mammals such as young ground squirrels as prey for nestlings and elevated perches for hunting. Therefore, it favors open and semi-open country over agricultural fields which may offer its prey too much cover. The Swainson hawk is considered to be generally tolerant of people and attracted to certain agricultural operations which disturb soils and displace prey which burrow or nest in those soils or from farm equipment which turn up insects. Such soil disturbances do regularly occur on the subject property. The project site is located near existing open and semi-open lands to the south of the site, which may provide suitable foraging habitat for Swainson hawk. The project site provides marginal foraging habitat for this species.

Tricolored blackbirds nest in cattails, bulrushes, Himalaya berry, and agricultural silage, in areas that are flooded or otherwise defended against easy access by predators. Tricolored blackbirds forage away from nesting sites, and large colonies require large foraging areas; the birds eat insects, small fruits, seeds, and small aquatic life. Suitable habitat for foraging includes irrigated pasture, dry rangeland, and dairy operations providing successive harvest and flooding conditions. Orchards, row crops, and vineyards may occasionally and briefly be used as foraging habitat; however, these areas are not known to sustain breeding colonies. Tricolored blackbirds could occasionally forage over the project site; however, habitat suitable for nesting tricolored blackbirds is generally not found on the project site.

Horned larks, which feed on seeds and insects, are ground nesters. The frequent soil disturbance on the project site precludes the presence of this species.

Pallid bat, hoary bat, and western mastiff bat are relatively reclusive and are not expected to breed on the project site, but they may forage on or near the site from time to time. Hoary bats and western mastiff bats eat insects, while pallid bats eat insects, other invertebrates, and small vertebrates that they find on the ground or on vegetation. The project site would not constitute uniquely important habitat for these species.

Use of ruderal/nonnative grassland habitat by native terrestrial vertebrates is generally considered common in agricultural fields. This includes birds and small mammals which serve as an attractant to both foraging raptors, such as hawks and owls, and mammalian predators; as well as, those terrestrial and/or ground-nesting special status species preferring open prairie and/or grassland habitats.

Mitigation Measure MM BIO-1 of MEIR SCH No. 2012111015 for the Fresno General Plan requires construction of a proposed project to avoid, where possible, vegetation communities that provide suitable habitat for a special-status species known to occur within the Planning Area. If construction within potentially suitable habitat must occur, the presence/absence of any special-status plant or wildlife species must be determined prior to construction, to determine if the habitat supports any special-status species. If special-status species are determined to occupy any portion of a project site, avoidance and minimization measures shall be incorporated into the construction phase of a project to avoid direct or incidental take of a listed species to the greatest extent feasible.

Furthermore, Mitigation Measure MM BIO-2 of MEIR SCH No. 2012111015 for the Fresno General Plan requires that any direct or incidental take of any state or federally listed species should be avoided to the greatest extent feasible. If construction of a proposed project will result in the direct or incidental take of a listed species, consultation with the resources agencies and/or additional permitting may be required. Agency consultation through the California Department of Fish and Wildlife (CDFW) 2081 and U.S. Fish and Wildlife Service (USFWS) Section 7 or Section 10 permitting processes must take place prior to any action that may result in the direct or incidental take of a listed species. Specific mitigation measures for direct or incidental impacts to a listed species will be determined through agency consultation.

Mitigation Measure MM BIO – 4 of MEIR SCH No. 2012111015 for the Fresno General Plan requires projects within the Planning Area to avoid, if possible, construction within the general nesting season of February through August for avian species protected under Fish and Game Code 3500 and the Migratory Bird Treaty Act (MBTA), if it is determined that suitable nesting habitat occurs on a project site. If construction cannot avoid the nesting season, a pre-construction clearance survey must be conducted to determine if any nesting birds or nesting activity is observed on or within 500-feet of a project site. If an active nest is observed during the survey, a biological monitor must be on site to ensure that no proposed project activities would impact the active nest. A suitable buffer will be established around the active nest until the nestlings have fledged and the nest is no longer active. Project activities may continue in the vicinity of the nest only at the discretion of the biological monitor.

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, home to special status plant and animal species, of importance in maintaining water quality or sustaining flows, etc. Examples of natural communities of special concern in the San Joaquin Valley could include: open, ruderal/nonnative grassland habitat, which is infrequently disturbed, vernal pools and various types of riparian forest. No natural communities of special concern were identified on the project site.

Wildlife movement corridors are areas where wildlife species regularly and predictably move during foraging, or during dispersal or migration. Movement corridors in California are typically associated with valleys, rivers and creeks supporting riparian vegetation, and ridgelines. Such geographic and topographic features are absent from the project site. Additionally, due to the presence of developed lands and urban uses surrounding the subject property, there is limited potential for project related activities to have an impact on the movement of wildlife species or established wildlife corridors. Compliance with the biological Mitigation Measures of MEIR SCH No. 2012111015 for the Fresno General Plan through preparation of a pre-construction biological survey prior to construction, to determine if the project site supports any special-status species. If a special-status species is determined to occupy any portion of a project site, avoidance and minimization measures shall be incorporated into the construction phase of a project to avoid direct or incidental take of a listed species to the greatest extent feasible.

No habitat conservation plans or natural community conservation plans in the region pertain to natural resources that exist on the subject site or in its immediate vicinity.

Implementation of all Biological Resource related mitigation measures of MEIR SCH No. 2012111015 for the Fresno General Plan have been applied to the proposed project. Therefore, no actions or activities resulting from the implementation of the proposed project would have the potential to affect floral, or faunal species; or, their habitat. Therefore, there will be no impacts to Biological Resources.

In conclusion, with the MEIR and Project Specific Mitigation Measures incorporated the proposed project will not result in any biological resource impacts beyond those analyzed in MEIR SCH No. 2012111015.

Mitigation Measures

1. The proposed project shall implement and incorporate, as applicable, the biological resources related mitigation measures as identified in the attached MEIR SCH No. 2012111015 Fresno General Plan Mitigation Monitoring Checklist dated March 2019.

2. The proposed project shall implement and incorporate the biological resources related mitigation measure as identified in the attached Project Specific Mitigation Monitoring Checklist dated March 2019.

ENVIRONMENTAL ISSUES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?		X		
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

There are no structures which exist within the project area that are listed in the National or Local Register of Historic Places, and the subject site is not within a designated historic district. There are no known archaeological or paleontological resources that exist within the project area.

There is no evidence that cultural resources of any type (including historical, archaeological, paleontological, or unique geologic features) exist on the subject property. Nevertheless, there is some possibility that a buried site may exist in the area and be obscured by vegetation, fill, or other historic activities, leaving no surface evidence. Furthermore, previously unknown paleontological resources or undiscovered human remains could be disturbed during project construction.

Therefore, due to the ground disturbing activities that will occur as a result of the project, the measures within the MEIR SCH No. 2012111015 for the Fresno General Plan, Mitigation Monitoring Checklist to address archaeological resources, paleontological resources, and human remains will be employed to guarantee that should archaeological and/or animal fossil material be encountered during project excavations, then work shall stop immediately; and, that qualified professionals in the respective field are contacted and consulted in order to ensure that the activities of the proposed project will not involve physical demolition, destruction, relocation, or alteration of historic, archaeological, or paleontological resources.

Furthermore, as indicated within Section XVII, Tribal Cultural Resources, of this initial study, tribal consultation has occurred for the proposed project in compliance with AB52 requirements. Under invitations to consult under AB 52, one of the two contacted tribes responded. The Table Mountain Rancheria of California declined consultation via mail on January 8, 2019.

In conclusion, with implementation of the MEIR Cultural Resource Mitigation measures and project specific mitigation measures related to Tribal Cultural Resources incorporated herein below, the project will not result in any cultural resource impacts beyond those analyzed in MEIR SCH No. 2012111015.

Mitigation Measures

1. The proposed project shall implement and incorporate, as applicable, the cultural resource related mitigation measures as identified in the attached MEIR SCH No. 2012111015 Fresno General Plan Mitigation Monitoring Checklist dated March 2019.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. ENERGY – Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

Appendix F of the State CEQA Guidelines requires consideration of the potentially significant energy implications of a project. CEQA requires mitigation measures to reduce "wasteful, inefficient and unnecessary" energy usage (Public Resources Code Section 21100, subdivision [b][3]). According to Appendix F of the CEQA Guidelines, the means to achieve the goal of conserving energy include decreasing overall energy consumption, decreasing reliance on natural gas and oil, and increasing reliance on renewable energy sources. In particular, the proposed project would be considered "wasteful, inefficient, and unnecessary" if it were to violate state and federal energy standards and/or result in significant adverse impacts related to project energy requirements, energy inefficiencies, energy intensiveness of materials, cause significant impacts on local and regional energy supplies or generate requirements for additional capacity, fail to comply with existing energy standards, otherwise result in significant adverse impacts on energy resources, or conflict or create an inconsistency with applicable plan, policy, or regulation.

The proposed project includes the construction of 13,325 gross sf of commercial, retail, fast food, and fuel uses on the 3.92-acre project site. The development would include two phases: development of a 3,062 gross sf 7-Eleven building and a 2,263 gross sf Panda Express restaurant building during Phase 1, and a 5,000 gross sf future retail building and a 3,000 gross sf future fast food building during Phase 2. Both the Panda Express restaurant and the future fast food building would include drive-throughs. The amount of energy used at the project site would directly correlate to the size of the proposed buildings, the energy consumption of associated appliances and technology, and outdoor lighting. Other major sources of proposed project energy consumption include fuel used by vehicle trips generated during project construction and operation, and fuel used by off-road construction vehicles during construction.

The following discussion provides calculated levels of energy use expected for the proposed project, based on commonly used modelling software (i.e. CalEEMod v.2016.3.2 and the California Air Resource Board's EMFAC2014). It should be noted that many of the assumptions provided by CalEEMod are conservative relative to the proposed project. Therefore, this discussion provides a conservative estimate of proposed project emissions.

Electricity and Natural Gas

Electricity and natural gas used by the proposed project would be used primarily to power on-site buildings. Total annual electricity (kWh) and natural gas (kBTU) usage associated with the operation of the proposed project are shown in Table 1, below (as provided by CalEEMod).

Table 1: Project Operational Natural Gas and Electricity Usage

Emissions[a]	***Natural Gas (kBTU/year)***	***Electricity (kWh/year)***
Convenience Market w/ Gas Pumps (7-Eleven)	18,126.9	13,806.9
Parking Lot	0.0	6,580.0
Fast Food Restaurant w/ Drive Thru (Panda Express)	468,605.0	64,516.2
Fast Food Restaurant w/ Drive Thru (2,000 sf future fast food)	420,419.0	57,882.1
Parking Lot	0.0	5,040.0
Strip Mall (3,000 sf future retail)	32,121.4	24,466.3
Strip Mall (3,000 sf future retail)	32,100.0	24,450.0
Parking Lot	0.0	7,140.0
Total	**971,372.3**	**203,881.5**

NOTE: [A] NUMBERS PROVIDED HERE MAY NOT ADD UP EXACTLY TO TOTAL DUE TO ROUNDING.
SOURCE: CALEEMOD (V.2016.3.2).

According to Calico's *Appendix A: Calculation Details for CalEEMod*, CalEEMod uses the California Commercial End Use Survey (CEUS) database to develop energy intensity value for non-residential buildings. The energy use from residential land uses is calculated based on the Residential Appliance Saturation Survey (RASS). Similar to CEUS, this is a comprehensive energy use assessment that includes the end use for various climate zones in California.

As shown in Table 1, the project would us approximately 971,372.3 kBTU of natural gas per year and approximately 203,881.5 kWh of electricity per year.

On-Road Vehicles (Operation)

The proposed project would generate vehicle trips during its operational phase. According to the Traffic Impact Analysis Report prepared for the proposed project (JLB Traffic Engineering, Inc., 2018), the project would generate approximately 7,965 new daily vehicles trips. In order to calculate operational on-road vehicle energy usage and emissions, default trip lengths generated by CalEEMod were used, which are based on the project location and urbanization level parameters Stantec (the

Air Quality consultant) selected within CalEEMod (i.e. "Fresno County" project location and "Urban" setting, respectively). These values are provided by the individual districts or use a default average for the state, depending on the location of the proposed project (CAPCOA, 2017). Based on default factors provided by CalEEMod, the average distance per trip was conservatively calculated to be approximately 9.0 miles. Therefore, the proposed project would generate at total of approximately 33,076 average daily vehicle miles travelled (Average Daily VMT). Using fleet mix data provide by CalEEMod (v2016.3.2), and Year 2020 gasoline and diesel MPG (miles per gallon) factors for individual vehicle classes as provided by EMFAC2014, De Novo derived weighted MPG factors for operational on-road vehicles of approximately 26.0 MPG for gasoline and 15.5 MPG for diesel vehicles. With this information, De Novo calculated as a conservative estimate that the unmitigated proposed project would generate vehicle trips that would use a total of approximately 1,242 gallons of gasoline and 47 gallons of diesel fuel per day, on average, or 453,189 gallons of gasoline and 17,118 annual gallons of diesel fuel per year.

On-Road and Off-Road Vehicles (Construction)

The proposed project would also generate on-road vehicle trips during project construction (from construction workers and vendors). Estimates of vehicle fuel consumed were derived based on the assumed construction schedule, vehicle trip lengths and number of workers per construction phase as provided by CalEEMod, and Year 2020 gasoline MPG factors provided by EMFAC2014. For the purposes of simplicity, it was assumed that all vehicles used gasoline as a fuel source (as opposed to diesel fuel or alternative sources). Table 2, below, describes gasoline and diesel fuel used by on-road mobile sources during each phase of the construction schedule. As shown, the vast majority of on-road mobile vehicle fuel used during the construction of the proposed project would occur during the building construction phase. See Appendix B for a detailed calculation.

Off-road construction vehicles would use diesel fuel during the construction phase of the proposed project. A non-exhaustive list of off-road constructive vehicles expected to be used during the construction phase of the proposed project includes: cranes, forklifts, generator sets, tractors, excavators, and dozers. The proposed project would use diesel fuel for off-road construction vehicles (during the site preparation and grading phases of the proposed project).

Table 2: On-Road Mobile Fuel Generated by Project Construction Activities – By Phase

Construction Phase	***# of Days***	***Total Daily Worker Trips[(a)]***	***Total Daily Vendor Trips[(a)]***	***Gallons of Gasoline Fuel[(b)]***	***Gallons of Diesel Fuel[(b)]***
Site Preparation	6	48	-	123	-
Grading	12	48	-	246	-
Building Construction	600	145	63	37,182	40,820
Paving	30	75	-	962	-
Architectural Coating	30	28	-	359	-
Total	**N/A**	**N/A**	**N/A**	**38,872**	**40,820**

NOTE: [(A)] PROVIDED BY CALEEMOD. [(B)]SEE APPENDIX B FOR FURTHER DETAIL.
SOURCE: CALEEMOD (V.2016.3.2); EMFAC2014.

Other

Proposed project landscape maintenance activities would generally require the use of fossil fuel (i.e. gasoline) energy. For example, lawn mowers require the use of fuel for power. As an approximation, it is estimated that landscape care maintenance would require approximately two individuals one full day per week, or 839 hours per year (or 208.4 hours per year per landscaper). Assuming an average of approximately 0.5 gallons of gasoline used per person-hour, the proposed project would require the use of approximately 420 gallons of gasoline per year to power landscape maintenance equipment. The energy used to power landscape maintenance equipment would not differ substantially from the energy required for landscape maintenance for similar project.

Conclusion

The proposed project would use energy resources for the operation of project buildings (electricity and natural gas), for on-road vehicle trips (e.g. gasoline and diesel fuel) generated by the proposed project, and from off-road construction activities associated with the proposed project (e.g. diesel fuel). Each of these activities would require the use of energy resources. The proposed project would be responsible for conserving energy, to the extent feasible, and relies heavily on reducing per capita energy consumption to achieve this goal, including through State-wide and local measures.

The proposed project would be in compliance with all applicable Federal, State, and local regulations regulating energy usage. For example, PG&E is responsible for the mix of energy resources used to provide electricity for its customers, and it is in the process of implementing the State-wide Renewable Portfolio Standard (RPS) to increase the proportion of renewable energy (e.g. solar and wind) within its energy portfolio. PG&E is expected to achieve at least a 33% mix of renewable energy resources by 2020, and 50% by 2030. Additionally, energy-saving regulations, including the latest State Title 24 building energy efficiency standards ("part 6"), would be applicable to the proposed project. Other State-wide measures, including those intended to improve the energy efficiency of the State-wide passenger and heavy-duty truck vehicle fleet (e.g. the Pavley Bill and the Low Carbon Fuel Standard), would improve vehicle fuel economies, thereby conserving gasoline and diesel fuel. These energy savings would continue to accrue over time.

As a result, the proposed project would not result in any significant adverse impacts related to project energy requirements, energy use inefficiencies, and/or the energy intensiveness of materials by amount and fuel type for each stage of the project including construction, operations, maintenance, and/or removal. PG&E, the electricity and natural gas provider to the site, maintains sufficient capacity to serve the proposed project. The proposed project would comply with all existing energy standards, and would not result in significant adverse impacts on energy resources. For these reasons, the proposed project would not be expected cause an inefficient, wasteful, or unnecessary use of energy resources nor cause a significant impact on any of the threshold as described by Appendix F of the *CEQA Guidelines*.

In conclusion, energy impacts would be considered less than significant.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS – Would the project:				
a) Directly or Indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:			X	
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?			X	
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X	
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	

There are no geologic hazards or unstable soil conditions known to exist on the site. The existing topography is relatively flat with no apparent unique or significant land forms such as vernal pools. Development of the property requires compliance with grading and drainage standards of the City of Fresno. A civil engineer or soils engineer registered in this state shall complete a Soils Investigation and Evaluation Report. The investigation will address the detail of the configuration, location, type of loading of the proposed structures and drainage plan. The report shall provide detailed recommendation for foundations, drainage, and other items. The preparation of the Soils Investigation and Evaluation Report is an existing standard.

Fresno has no known active earthquake faults and is not in any Alquist-Priolo Special Studies Zones. The immediate Fresno area has extremely low seismic activity levels, although shaking may be felt from earthquakes whose epicenters lie to the east, west, and south. Known major faults are over 50 miles distant and include the San Andreas Fault, Coalinga area blind thrust fault(s), and the Long Valley, Owens Valley, and White Wolf/Tehachapi fault systems. The most serious threat to Fresno from a major earthquake in the Eastern Sierra would be flooding that could be caused by damage to dams on the upper reaches of the San Joaquin River.

Fresno is classified by the State as being in a moderate seismic risk zone, Category “C” or “D,” depending on the soils underlying the specific location being categorized and that location’s proximity to the nearest known fault lines. All new structures are required to conform to current seismic protection standards in the California Building Code. Seismic upgrade/retrofit requirements are imposed on older structures by the City’s Development and Resource Management Department as may be applicable to building modification and rehabilitation projects.

No adverse environmental effects related to topography, soils or geology are expected as a result of this project.

In conclusion, the proposed project would not result in any geology or soil environmental impacts beyond those analyzed in MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
VIII. GREENHOUSE GAS EMISSIONS – Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		X		
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		X		

The *State CEQA Guidelines* indicate that a project would normally have a significant adverse green-house gas emission impact if the project would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reduction the emissions of greenhouse gases.

Section 15064.4 of the *State CEQA Guidelines* states that: "A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." In performing that analysis, the lead agency has discretion to determine whether to use a model or methodology to quantify greenhouse gas emissions, or to rely on a qualitative analysis or performance-based standards. In making a determination as to the significance of potential impacts, the lead agency then considers the extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting, whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project, and the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions.

Therefore, consistent with the *State CEQA Guidelines,* Section 15183.5, if a project is consistent with an adopted qualified Greenhouse Gas Reduction Strategy that meets the standards, it can be presumed that the project would not have significant greenhouse gas emission impacts.

The City of Fresno Greenhouse Gas Reduction Plan (GHG Reduction Plan), adopted in December 2014 meets the requirements for a Qualified Greenhouse Gas Reduction Strategy. Therefore, the proposed project's GHG emissions would not be considered a significant impact if the proposed Project would be consistent with the City's GHG Reduction Strategy.

The GHG Reduction Plan includes a strategy to reduce local community GHG emissions to 1990 levels by the year 2020, consistent with the state objectives set forth in the "Global Warming Solutions Act," otherwise known as AB 32. The GHG Reduction Plan includes relevant General Plan objectives and policies. Table 3 evaluates the proposed project's consistency with the applicable objectives and policies included in the GHG Reduction Plan.

Table 3: Consistency with Fresno Greenhouse Gas Reduction Plan

GHG Reduction Plan Strategy	Project Consistency with Strategy
Policy LU-2-a Infill Development and Redevelopment. Promote development of vacant, underdeveloped, and redevelopable land uses within the City Limits where urban services are available by establishing and implementing supportive regulations and programs.	**Consistent.** The project is located on vacant land within City limits where urban services are available.
Policy RC-11-a Waste Reduction Strategies. Maintain current targets for recycling and re-use of all types of waste material in the city and enhance waste and wastewater management practices to reduce natural resource consumption, including the following measure: Establish recycling collection and storage area standards for commercial and industrial facilities to size the recycling areas according to the anticipated types and amounts of recyclable material generated.	**Consistent.** The project complies with Solid Waste Division's requirement to provide a sufficient amount of recycling collection areas.

As shown in Table 3, the proposed project would be consistent with the applicable strategies from the GHG Reduction Plan. Therefore, as demonstrated in Table 3 above, the proposed project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. In addition, the proposed project would not result in a substantial increase in GHG emissions. Therefore, the proposed project would not generate greenhouse gas emissions that may have a significant effect on the environment.

The GHG Reduction Plan includes a strategy to reduce local community GHG emissions to 1990 levels by the year 2020, consistent with the state objectives set forth in the "Global Warming Solutions Act," otherwise known as AB 32. The GHG Reduction Plan includes relevant General Plan objectives and policies.

As shown in Table 3 above, the proposed project would be consistent with the applicable strategies from the GHG Reduction Plan. Therefore, as demonstrated in Table 3 above, the proposed project would not conflict with plans, policies, or regulations adopted for the purpose of reducing GHG emissions. Therefore, the proposed project would not conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs and impacts would be less than significant.

ENVIRONMENTAL ISSUES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
IX. HAZARDS AND HAZARDOUS MATERIAL – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X	

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. HAZARDS AND HAZARDOUS MATERIAL – Would the project:				
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X	
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X	

There are no known existing hazardous material conditions on the property and the property is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. The project itself will not generate or use hazardous materials in a manner outside health department requirements.

The subject property is not located within any wildland fire hazard zones.

The proposed project incorporates four access points, which will be utilized for purposes of emergency vehicle access.

As shown in historical aerial photographs available on Google Earth, an industrial building was previously located on the project site in 1998. The building was demolished by June 2009. Between 2009 and 2019, the site appears to be similar to the existing condition.

According to GeoTracker, one site is located in the immediate project vicinity. The Smith Tank Lines Site (Site # T0601900627) is a Leaking Underground Storage Tank (LUST) Cleanup Site with a cleanup status of Completed – Case Closed as of December 15, 2005. A leak at this site was reportedly discovered in August 1997. The leak was stopped in September 1997, and the Closure/No Further Action letter was submitted in December 2005. No other hazardous sites are documented in the immediate project vicinity.

The project area is not located in an FAA-designated Runway Protection Zone, Inner Safety Zone and Sideline Safety Zone according to review of the Downtown Fresno Chandler Airport and Yosemite International Airport Existing Safety Zones Maps. Based upon the goals of the proposed project, no potential interference with an adopted emergency response or evacuation plan has been identified.

In conclusion, the project will not result in any hazards and hazardous material impacts beyond those analyzed in MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?		X		
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or through the addition of impervious surfaces, in a manner which would:			X	
i) Result in a substantial erosion or siltation on- or off-site;		X		
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;		X		
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or		X		
iv) impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

Fresno is one of the largest cities in the United States still relying primarily on groundwater for its public water supply. Surface water treatment and distribution has been implemented in the northeastern part of the City, but the city is still subject to an EPA Sole Source Aquifer designation. While the aquifer underlying Fresno typically exceeds a depth of 300 feet and is capacious enough to provide adequate quantities of safe drinking water to the metropolitan area well into the twenty-first century, groundwater degradation, increasingly stringent water quality regulations, and a historic trend of high consumptive use of water on a per capita basis (some 250 gallons per day per capita), have resulted in a general decline in aquifer levels, increased cost to provide potable water, and localized water supply limitations.

This mitigated negative declaration prepared for the proposed project is tiered from MEIR SCH No. 2012111015) prepared for the Fresno General Plan (collectively, the "MEIR"), which contains measures to mitigate projects' individual and cumulative impacts to groundwater resources and to reverse the groundwater basin's overdraft conditions.

Fresno has attempted to address these issues through metering and revisions to the City's Urban Water Management Plan (UWMP). The Fresno Metropolitan Water Resource Management Plan, which has been adopted and the accompanying Final EIR (SCH #95022029) certified, is also under revision. The purpose of these management plans is to provide safe, adequate, and dependable water supplies in order to meet the future needs of the metropolitan area in an economical manner; protect groundwater quality from further degradation and overdraft; and, provide a plan of reasonably implementable measures and facilities. City water wells, pump stations, recharge facilities, water treatment and distribution systems have been expanded incrementally to mitigate increased water demands and respond to groundwater quality challenges.

The adverse groundwater conditions of limited supply and compromised quality have been well-documented by planning, environmental impact report and technical studies over the past 20 years including the MEIR No. 2012111015 for the Fresno General Plan, the MEIR 10130 for the 2025 Fresno General Plan, Final EIR No.10100, Final EIR No.10117 and Final EIR No. SCH 95022029 (Fresno Metropolitan Water Resource Management Plan), et al. These conditions include water quality degradation due to DBCP, arsenic, iron, and manganese concentrations; low water well yields; limited aquifer storage capacity and recharge capacity; and, intensive urban or semi-urban development occurring upgradient from the Fresno Metropolitan Area.

In response to the need for a comprehensive long-range water supply and distribution strategy, the Fresno General Plan recognizes the Kings Basin's Integrated Regional Water Management Plan, Fresno-Area Regional Groundwater Management Plan, and City of Fresno Metropolitan Water Resource Management Plan and cites the findings of the City of Fresno Urban Water Management Plan (UWMP). The purpose of these management plans is to provide safe, adequate, and dependable water supplies to meet the future needs of the Kings Basin regions and the Fresno-Clovis metropolitan area in an economical manner; protect groundwater quality from further degradation and overdraft; and, provide a plan of reasonably implementable measures and facilities.

The 2010 Urban Water Management Plan, Figure 4-3 (incorporated by reference) illustrates the City of Fresno's goals to achieve a 'water balance' between supply and demand while decreasing reliance upon and use of groundwater. To achieve these goals the City is implementing a host of strategies, including:

- Intentional groundwater recharge through reclamation at the City's groundwater recharge facility at Leaky Acres (located northwest of Fresno-Yosemite international Airport), refurbish existing streams and canals to increase percolation, and recharge at Fresno Metropolitan Flood Control District's (FMFCD) storm water basins;

- Increase use of existing surface water entitlements from the Kings River, United States Bureau of Reclamation and Fresno Irrigation District for treatment at the Northeast Storm Water Treatment Facility (NESWTF) and construct a new Southeast Storm Water Treatment Facility (SESWTF); and

- Recycle wastewater at the Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF) for treatment and re-use for irrigation, and to percolation ponds for groundwater recharge. Further actions include the General Plan, Policy RC-6-d to prepare, adopt and implement a City of Fresno Recycled Water Master Plan.

The City has indicated that groundwater wells, pump stations, recharge facilities, water treatment and distribution systems shall be expanded incrementally to mitigate increased water demands. One of the primary objectives of Fresno's future water supply plans detailed in Fresno's current UWMP is to balance groundwater operations through a host of strategies. Through careful planning, Fresno has designed a comprehensive plan to accomplish this objective by increasing surface water supplies and surface water treatment facilities, intentional recharge, and conservation, thereby reducing groundwater pumping. The City continually monitors impacts of land use changes and development project proposals on water supply facilities by assigning fixed demand allocations to each parcel by land use as currently zoned or proposed to be rezoned.

Until 2004, groundwater was the sole source of water for the City. In June 2004, a $32 million Surface Water Treatment Facility ("SWTF") began providing Fresno with water treated to drinking water standards. A second surface water treatment facility is operational in southeast Fresno to meet demands anticipated by the growth implicit in the 2025 Fresno General Plan. Surface water is used to replace lost groundwater through Fresno's artificial recharge program at the City-owned Leaky Acres and smaller facilities in Southeast Fresno. Fresno holds entitlements to surface water from Millerton Lake and Pine Flat Reservoir. In 2006, Fresno renewed its contract with the United States Bureau of Reclamation, through the year 2045, which entitles the City to 60,000 acre-feet per year of Class 1 water. This water supply has further increased the reliability of Fresno's water supply.

Also, in 2006, Fresno updated its Metropolitan Water Resources Management Plan designed to ensure the Fresno metro area has a reliable water supply through 2050. The plan implements a conjunctive use program, combining groundwater, treated surface water, artificial recharge and an enhanced water conservation program.

In the near future, groundwater will continue to be an important part of the City's supply but will not be relied upon as heavily as has historically been the case. The City is planning to rely on expanding their delivery and treatment of surface water supplies and groundwater recharge activities.

In addition, the General Plan policies require the City to maintain a comprehensive conservation program to help reduce per capita water usage, and includes conservation programs such as landscaping standards for drought tolerance, irrigation control devices, leak detection and retrofits, water audits, public education and implementing US Bureau of Reclamation Best Management Practices for water conservation to maintain surface water entitlements.

Implementation of the Fresno General Plan policies, the Kings Basin Integrated Regional Water Management Plan, City of Fresno UWMP, Fresno-Area Regional Groundwater Management Plan, and City of Fresno Metropolitan Water Resource Management Plan and the applicable mitigation measures of approved environmental review documents will address the issues of providing an adequate, reliable, and sustainable water supply for the project's urban domestic and public safety consumptive purposes. The recently adopted 2015 UWMP analyzed the Fresno General Plans land use capacity.

The project site is mostly flat and the project would not substantially alter the existing drainage pattern of the site or area. The project site does not have a stream or river. The project would not result in substantial erosion or siltation on- or off-site, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. The storm drainage plan will be supported by engineering calculations to ensure that the project does not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The project would not impede or redirect flood flows. :The project site is not in a location that is prone to flood hazard, tsunami, or seiche zones, and is not at risk of release of pollutants due to project inundation.

The applicant will be required to comply with all requirements of the City of Fresno Department of Public Utilities that will reduce the project's water impacts to less than significant. When development permits are issued, the subject site will be required to pay drainage fees pursuant to the Drainage Fee Ordinance.

In conclusion, with MEIR mitigation measures incorporated, the project will not result in any hydrology or water quality impacts beyond those analyzed in MEIR SCH No. 2012111015.

Mitigation Measures

1. The proposed project shall implement and incorporate, as applicable, the hydrology related mitigation measures as identified in the attached MEIR SCH No. 2012111015 Fresno General Plan Mitigation Monitoring Checklist dated March 2019.

ENVIRONMENTAL ISSUES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
XI. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?			X	
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

The subject property includes a request for a Condition Use Permit. Conditional Use Permits are required for Drive-Through Facilities and Alcohol Sales within the Heavy Industrial zoning designation. The remaining proposed uses are permitted by-right. The proposed project site is designated and zoned for Heavy Industrial uses. Upon approval, the proposed project would not conflict with any land use plan, policy or regulation given that the Conditional Use Permit would facilitate consistency for the 13,325 sf of commercial, retail, fast food, and fuel uses. The project would not require a rezone or General Plan amendment. The Heavy Industrial land use designation accommodates the broadest range of industrial uses including manufacturing, assembly, wholesaling, distribution, and storage activities that are essential to the development of a balanced economic base. Small-scale commercial services and ancillary office uses are also permitted. The maximum FAR is 1.5. The proposed small-scale commercial and ancillary uses are allowed within this land use designation, and the project does not exceed the maximum FAR.

Fresno General Plan Goals, Objectives and Policies

As proposed, the project will be consistent with the following Fresno General Plan goals:

- Increase opportunity, economic development, business, and job creation.

- Make full use of existing infrastructure, and investment in improvements to increase competitiveness and promote economic growth.

- Promote orderly land use development in pace with public facilities and services needed to serve development.

- Provide for a diversity of districts, neighborhoods, housing types (including affordable housing), residential densities, job opportunities, recreation, open space, and educational venues that appeal to a broad range of people throughout the City.

These Goals contribute to the establishment of a comprehensive city-wide land use planning strategy to meet economic development objectives, achieve efficient and equitable use of resources and infrastructure, and create an attractive living environment in accordance with Objective LU-1 of the Fresno General Plan.

Policy UF-1-a promotes new development within the existing City limits. The project site is within the existing City limits.

Likewise, Objective LU-6 of the General Plan aims to retain and enhance existing commercial areas to strengthen Fresno's economic base and site new office, retail, and lodging use districts to serve neighborhoods and regional visitors. Policy LU-6-6 aims to direct highway-oriented and auto-serving commercial uses to locations that are compatible with the Urban Form policies of the General Plan. This policy also ensures that adequate buffering measures are implemented for adjacent residential uses, noise, glare, odors, and dust. Because the site is adjacent to a SR 99 off-ramp, the proposed auto-centric uses are in an appropriate location. Additionally, the project site is not located near any residential uses.

This project supports the above-mentioned goals and policies in that the intensity of the proposed development conforms to the applicable land use designation of the Fresno General Plan.

The project will not conflict with any conservation plans since it is not located within any conservation plan areas. No habitat conservation plans or natural community conservation plans in the region pertain to the natural resources that exist on the subject site or in its immediate vicinity. Therefore, there would be no impacts.

In conclusion, the proposed project would not result in any land use and planning environmental impacts beyond those analyzed in MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. MINERAL RESOURCES – Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?			X	

The subject site is not located in an area designated for mineral resource preservation or recovery, therefore, the project will not result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state. The subject site is not delineated on a local general plan, specific plan or other land use plan as a locally-important mineral resource recovery site; therefore, it will not result in the loss of availability of a locally-important mineral resource.

In conclusion, the proposed project would not result in any mineral resource environmental impacts beyond those analyzed in MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. NOISE – Would the project result in:				
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X	

Generally, the three primary sources of substantial noise that affect the City of Fresno and its residents are transportation-related and consist of major streets and regional highways; airport operations at the Fresno Yosemite International, the Fresno-Chandler Downtown, and the Sierra Sky Park Airports; and railroad operations along the BNSF Railway and the Union Pacific Railroad lines.

In developed areas of the community, noise conflicts often occur when a noise sensitive land use is located adjacent or in proximity to a noise generator. Noise in these situations frequently stems from on-site operations, use of outdoor equipment, uses where large numbers of persons assemble, and vehicular traffic. Some land uses, such as residential dwellings hospitals, office buildings and schools, are considered noise sensitive receptors and involve land uses associated with indoor and/or outdoor activities that may be subject to stress and/or significant interference from noise.

Stationary noise sources can also have an effect on the population, and unlike mobile, transportation-related noise sources, these sources generally have a more permanent and consistent impact on people. These stationary noise sources involve a wide spectrum of uses and activities, including various industrial uses, commercial operations, agricultural production, school playgrounds, high school football games, HVAC units, generators, lawn maintenance equipment and swimming pool pumps.

Potential noise sources at the project site would occur primarily from roadway noise on the project area roadways and the outdoor parking areas.

The City of Fresno Noise Element of the Fresno General Plan establishes a land use compatibility criterion of 60dB DNL for exterior noise levels in outdoor areas of noise-sensitive land uses. The intent of the exterior noise level requirement is to provide an acceptable noise environment for outdoor activities and recreation. However, the project site is not located in the vicinity of existing sensitive land uses, and the project doesn't propose sensitive land uses. Furthermore, the Noise Element also requires that interior noise levels attributable to exterior noise sources not exceed 45 dB DNL. The intent of the interior noise level standard is to provide an acceptable noise environment for indoor communication and sleep.

For stationary noise sources, the noise element establishes noise compatibility criteria in terms of the exterior hourly equivalent sound level (L_{eq}) and maximum sound level (L_{max}). The standards are more restrictive during the nighttime hours, defined as 10:00 p.m. to 7:00 a.m. The standards may be adjusted upward (less restrictive) if the existing ambient noise level without the source of interest already exceeds these standards. The Noise Element standards for stationary noise sources are: (1) 50 dBA L_{eq} for the daytime and 45 dBA L_{eq} for the nighttime hourly equivalent sound levels; and, (2) 70 dBA L_{max} for the daytime and 65 dBA L_{max} for the nighttime maximum sound levels.

Noise created by new proposed stationary noise sources or existing stationary noise sources which undergo modification that may increase noise levels shall be mitigated so as not to exceed the noise level standards of Table 9 (Table 5.11-8 of the MEIR) at noise sensitive land uses. If the existing ambient noise levels equal or exceed these levels, mitigation is required to limit noise to the ambient noise level plus 5 dB.

The project site is currently vacant. Therefore, it is reasonable to assume that the proposed project will result in an increase in temporary and/or periodic ambient noise levels on the subject property above existing levels. However, these noise levels will not exceed those generated by adjacent existing or planned land uses.

Pursuant to Policy H-1-b of the Fresno General Plan, for purposes of City analyses of noise impacts, and for determining appropriate noise mitigation, a significant increase in ambient noise levels is assumed if the project causes ambient noise levels to exceed the following: (1) The ambient noise level is less than 60 db Ldn and the project increase noise levels by 5 dB or more; (2) The ambient noise level is 60-65 dB Ldn and the project increases noise levels by 3 dB or more; or, (3) The ambient noise level is greater than 65 dB Ldn and the project increases noise levels by 1.5 dB or more.

Short-term Noise Impacts

The construction of a project involves both short-term, construction related noise, and long-term noise potentially generated by increases in area traffic, nearby stationary sources, or other transportation sources. The Fresno Municipal Code (FMC) allows for construction noise in excess of standards if it complies with the section below (Chapter 10, Article 1, Section 10-109 – Exemptions). It states that the provisions of Article 1 – Noise Regulations of the FMC shall not apply to:

> Construction, repair or remodeling work accomplished pursuant to a building, electrical, plumbing, mechanical, or other construction permit issued by the city or other governmental agency, or to site preparation and grading, provided such work takes place between the hours of 7:00 a.m. and 10:00 p.m. on any day except Sunday.

Thus, construction activity would be exempt from City of Fresno noise regulations, as long as such activity is conducted pursuant to an applicable construction permit and occurs between 7:00 a.m. and 10:00 p.m., excluding Sunday. Therefore, short-term construction impacts associated with the exposure of persons to or the generation of noise levels in excess of standards established in the general plan or noise ordinance or applicable standards of other agencies would be less than significant.

Long Term Noise Impacts

The proposed project includes future commercial, retail, fast food, and fuel uses. The immediate vicinity consists of light industrial and heavy industrial uses, which produce noise levels which are either exceed or be similar to noise levels produced by the proposed project. Although the project will create additional activity in the area, the project will be required to comply with all noise policies from the Fresno General Plan and noise ordinance from the FMC.

Conclusion

Although the project will create additional activity in the area, the project will be required to comply with all noise policies and mitigation measures identified within the Fresno General Plan and MEIR as well as the noise ordinance of the Fresno Municipal Code.

In conclusion, the proposed project would not result in any noise environmental impacts beyond those analyzed in MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

The proposed project will not induce substantial population growth in this area. The surrounding area is mostly developed or will be developed with industrial uses. The intensity of the proposed project was included in the Fresno General Plan. The proposed project includes 13,325 sf of commercial, retail, fast food, and fuel uses; the impact would be less than significant since the surrounding uses are also industrial and given that development is occurring at a scale and scope designated by the Fresno General Plan.

The proposed project will not displace any existing housing. The project will not result in displacement of any persons as there is no development on the subject property.

In conclusion, the proposed project would not result in any population and housing environmental impacts beyond those analyzed in MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES – Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?		X		
Police protection?		X		
Schools?			X	
Parks?		X		
Drainage and flood control??		X		
Other public facilities?			X	

The subject property is located approximately 1.4 air miles (or 2.0 road miles) southeast from Fire Station 7.

The City of Fresno Fire Department operates its facilities under the guidance set by the National Fire Protection Association in NFPA 1710, the Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operation to the Public by Career Fire Departments. NFPA 1710 sets standards for turnout time, travel time, and total response time for fire and emergency medical incidents, as well as other standards for operation and fire service. The Fire Department has established the objectives set forth in NFPA 1710 as department objectives to ensure the public health, safety, and welfare.

Demand for fire service generated by the project is within planned services levels of the Fire Department and the applicant will pay any required impact fees at the time building permits are obtained.

According to the Fresno General Plan MEIR, development impact fees are currently collected for the provision of capital facilities for fire facilities that will provide for future facilities as the City's population increases. Recognizing that there would be an increased demand for fire and emergency medical response, the General Plan Update includes several policies to support the activities of the Fresno Fire Department. The policies and objectives from the General Plan will ensure that the proposed project does not significantly affect fire protection.

Additional fire service requirements for development of the proposed project will include installation of public fire hydrants and the provision of adequate fire flows per Public Works Standards, with two sources water; installation of fire sprinklers within future commercial buildings; and the provision of two means of emergency access during all phases of construction. Review for compliance with fire and life safety requirements for the interior of proposed buildings and the intended use are reviewed by both the Fire Department and the Building and Safety Services Section of the Development and Resource Management Department when a submittal for building plan review is made as required by the California Building Code.

City police protection services are also available to serve the proposed project with no new facilities required for police protection. Development of the property requires compliance with grading and drainage standards of the City of Fresno.

The proposed project does not include uses that would significantly increase the use of park and recreation facilities in the area. Demand for parks generated by the project is within planned services levels of the City of Fresno Parks and Community Services Department and the applicant will pay any required impact fees at the time building permits are obtained.

Similarly, the proposed commercial, retail, fast food, and fuel uses would not impact the District's student classroom capacity. The developer will pay appropriate school fees at time of building permits.

The Department of Public Utilities (DPU) has determined that adequate sanitary sewer and water services are available to serve the project site subject to implementation of the Fresno General Plan policies and the mitigation measures of the related MEIR; and, the construction and installation of public facilities and infrastructure in accordance with Department of Public Works standards, specifications and policies.

For sanitary sewer service these infrastructure improvements and facilities include typical requirements for construction and extension of sanitary sewer mains and branches within the interior of the future proposed commercial, retail, fast food, and fuel development. The proposed project will also be required to provide payment of sewer connection charges.

Implementation of the Fresno General Plan policies and the mitigation measures of the associated MEIR, along with the implementation of the Water Resources Management Plan, would ensure drainage impacts are less than significant. Installation of these services with meters to the proposed buildings and payment of applicable Water Capacity Charges will provide an adequate, reliable, and sustainable water supply for the project's urban domestic and public safety consumptive purposes.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the subject site is not located within a flood prone or hazard area, necessitating appropriate floodplain management action. The project site is mostly flat and the project would not substantially alter the existing drainage pattern of the site or area. The project site does not have a stream or river. The project would not result in substantial erosion or siltation on- or off-site, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. The storm drainage plan will be supported by engineering calculations to ensure that the project does not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

Portions of the subject property may be adequately served with permanent drainage service through existing Master Plan facilities or required Master Plan facilities to be developed in conjunction with the proposed project. The developer will be required to provide improvements which will convey surface drainage to Master Plan inlets and which will provide a path for major storm conveyance as well as construct facilities for temporary ponding purposes.

In conclusion, with implementation of the MEIR Public Service Mitigation measures, the project will not result in any public service impacts beyond those analyzed in MEIR SCH No. 2012111015.

Mitigation Measures

1. The proposed project shall implement and incorporate, as applicable, the Public Service related mitigation measures as identified in the attached MEIR SCH No. 2012111015 Fresno General Plan Mitigation Monitoring Checklist dated February 8, 2019.

ENVIRONMENTAL ISSUES	**Potentially Significant Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
XVI. RECREATION - Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

The proposed project will not result in the physical deterioration of existing parks or recreational facilities. Development of the project would not require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Demand for parks generated by the project would be minimal and is within planned services levels of the City of Fresno Parks and Community Services Department. The applicant will pay any required impact fees at the time building permits are obtained or receive credits for construction as may be memorialized within a development agreement.

In conclusion, the proposed project would not result in any recreation environmental impacts beyond those analyzed in MEIR SCH No. 2012111015.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION – Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?		X		
b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X	
d) Result in inadequate emergency access?			X	

According to the Traffic Impact Analysis prepared for the project, the proposed project is located within Traffic Impact Zone IV. The Traffic Impact Analysis is included as Appendix C.

In accordance with Policy MT-2-i of the Fresno General Plan, when a project includes a General Plan amendment that changes the General Plan Land Use Designation, and/or when a development project is projected to generate 200 or more peak hour new vehicle trips, a Transportation Impact Study (TIS) is required in order to assess the impacts of new development projects on existing and planned streets.

The proposed project would generate 200 or more peak hour new vehicle trips. Therefore, a Traffic Impact Analysis was prepared for the proposed project. The City Traffic Engineer reviewed and approved the Traffic Impact Analysis (JLB Traffic Engineering, Inc.) provided by the applicant dated February 16, 2018. According to the Traffic Impact Analysis, the project would generate a maximum of 7,965 daily trips, 644 AM peak hour trips, and 536 PM peak hour trips.

At present, all study intersections operate at an acceptable level of service (LOS) during the AM and PM peak periods. Under the Existing Plus Project condition, the intersection of North Avenue and SR 99 Southbound Off-Ramp is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented:

- Add a southbound left-turn lane
- Modify the southbound left-through lane to a through lane
- Lengthen the short southbound flared right-turn lane to create a standard length right turn lane
- Signalize the intersection with protected left-turn phasing in the northbound and southbound directions and split phasing in the eastbound and westbound directions

Under the Near Term Plus Project condition, the intersections of North Avenue and Orange Avenue, North Avenue and SR 99 Southbound Off-Ramp, and North Avenue and Cedar Avenue are projected to exceed their respective LOS threshold during one or both peak periods. To improve the LOS at each of the intersections projected to exceed its LOS threshold, it is recommended that the following improvements be implemented:

- North Avenue and Orange Avenue:
  - Implement the improvements per the approved City of Fresno Street improvement plans as prepared for the Amazon Project.
- North Avenue and SR 99 Southbound Off-Ramp:
  - Add a second eastbound through lane
  - Add a westbound left-turn lane
  - Modify the westbound left-through lane to a through lane
  - Add southbound dual left-turn lanes
  - Modify the southbound left-through lane to a through lane
  - Lengthen the southbound flared right-turn lane to create a standard length right-turn lane
  - Signalize the intersection with protected left-turn phasing in all directions
- North Avenue and SR 99 Northbound On-Ramp (improvements needed to improve queuing):
  - Add eastbound dual left-turn lanes
  - Modify the eastbound left-through lane to a through lane
  - Add a second eastbound through lane
  - Add a second westbound through lane
  - Signalize the intersection with protected left-turn phasing in all directions
- North Avenue and Cedar Avenue:
  - Convert the eastbound right-turn lane to a through-right lane
  - Add a second westbound through lane
  - Add a second northbound left-turn lane
  - Modify the traffic signal to accommodate the added lane geometrics

Under the Cumulative Year 2035 No Project condition, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the following improvements be implemented:

- North Avenue at Chestnut Avenue:
  - Add an eastbound left-turn lane
  - Change the eastbound left-through-right lane to a through lane
  - Add an eastbound right-turn lane
  - Add a westbound left-turn lane
  - Change the westbound left-through-right lane to a through lane
  - Add a westbound right-turn lane
  - Modify the traffic signal to accommodate the added lane geometrics

Under the Cumulative Year 2035 Plus Project condition, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the same improvements presented in the Cumulative Year 2035 No Project condition be implemented.

Payment of the pro-rata fair share would satisfy the project's mitigation measure requirements.

Additionally, a review of the existing project site property lines and the project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network.

The City Engineer has reviewed the proposed project, the Traffic Impact Analysis, and potential traffic related impacts for the proposed project and has determined that the streets adjacent to and near the subject site will be able to accommodate the quantity and kind of traffic which may be potentially generated subject to the requirements identified within the Traffic Impact Analysis dated January 12, 2018 and the Conditions of Approval dated November 7, 2018. These requirements generally include: (1) Dedication for sidewalks, public streets and right-of-way; (2) Street improvements, (including, but not limited to, construction of concrete curbs, gutters, pavement, underground street lighting systems); and, (3) Payment of applicable impact fees (including, but not limited to, the Traffic Signal Mitigation Impact [TSMI] Fee, Fresno Major Street Impact [FMSI] Fee, and the Regional Transportation Mitigation Fee [RTMF]).

The impacts to the facilities indicated in prior discussion are covered by the fee programs mentioned above, including the TSMI Fee[1], FMSI Fee[2], and the RTMF[3].

A review of the existing project site property lines and the project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network. The design of the proposed development has been evaluated and determined to be consistent with respect to compliance with City of Fresno standards, specification and policies.

The project is not located near an airport; therefore, it will not change air traffic levels. The proposed streets will not create hazards or conflict with emergency access. With the required mitigation measures, the project will not conflict with adopted policies or plans regarding public transit, bicycle or pedestrian facilities because said features are incorporated into the conditions of approval for the project.

In conclusion, with implementation of the project specific mitigation measures related to Transportation and Circulation incorporated herein below, the project will not result in any transportation and circulation impacts beyond those analyzed in MEIR SCH No. 2012111015.

Mitigation Measures

1. The proposed project shall implement and incorporate the transportation and circulation related mitigation measure as identified in the attached Project Specific Mitigation Monitoring Checklist dated March 2019.

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[1] https://www.fresno.gov/publicworks/wp-content/uploads/sites/17/2016/09/TSMI2016FeeUpdate.pdf. Accessed April 17, 2019.

[2] https://fresno.legistar.com/View.ashx?M=F&ID=4817606&GUID=5ED59933-2A30-4835-AD65-AA72A2FE781D. Accessed April 17, 2019.

[3] https://www.fresnocog.org/wp-content/uploads/files/C%20Exp%20Plan_Final%20for%20Printing%20062206.pdf. Accessed April 17, 2019.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRIBAL CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:			X	
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC section 5020.1(k), or,			X	
ii) A resource determined by the lead agency, in its discretion and supported by substantial evi-dence, to be significant pursuant to criteria set forth in subdivision (c) of PRC section 5024.1. In applying the criteria set forth in subdivision (c) of PRC section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			X	

The State requires lead agencies to consider the potential effects of proposed projects and consult with California Native American tribes during the local planning process for the purpose of protecting Traditional Tribal Cultural Resources through the California Environmental Quality Act (CEQA) Guidelines. Pursuant to PRC Section 21080.3.1, the lead agency shall begin consultation with the California Native American tribe that is traditionally and culturally affiliated with the geographical area of the proposed project. Such significant cultural resources are either sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a tribe which is either on or eligible for inclusion in the California Historic Register or local historic register, or, the lead agency, at its discretion, and support by substantial evidence, choose to treat the resources as a Tribal Cultural Resources (PRC Section 21074(a)(1-2)).

Additional information may also be available from the California Native American Heritage Commission's Sacred Lands File per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality.

Pursuant to Assembly Bill 52 (AB 52), the Table Mountain Rancheria Tribe and the Dumna Wo Wah were invited to consult under AB 52. The City of Fresno mailed notices of the proposed project to each of these tribes on October 26, 2018 which included the required 30-day time period for tribes to request consultation.

Under invitations to consult under AB 52, one of the two contacted tribes responded. The Table Mountain Rancheria of California declined consultation via mail on January 8, 2019.

The site is currently vacant and has been previously disturbed and developed. If any artifacts are inadvertently discovered during ground-disturbing activities, existing federal, State, and local laws and regulations as well as the mitigation measures of the Fresno General Plan MEIR will require construction activities to cease until such artifacts are properly examined and determined not to be of significance by a qualified cultural resources professional.

In conclusion, with implementation of the MEIR Cultural Resource Mitigation measures, impacts related to tribal cultural resources would be less than significant.

Mitigation Measures

1. The proposed project shall implement and incorporate, as applicable, the cultural resources related mitigation measures as identified in the attached MEIR SCH No. 2012111015 Fresno General Plan Mitigation Monitoring Checklist dated March 2019.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effect?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the waste water treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?			X	

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

The proposed project will require construction of new infrastructure to connect to the existing utility infrastructure. This will include water, wastewater, and storm water drainage connections. Additionally, the project will include connections for electric power, natural gas, and telecommunications facilities. The installation of this infrastructure will not require any major upsizing or other offsite construction activities that would cause a significant impact. The new infrastructure would be connected to existing infrastructure that is adjacent to the project site.

As discussed uny the Hydrology and Water Quality section of this Initial Study, the City has adequate water supply and the applicant will be required to comply with all requirements of the City of Fresno Department of Public Utilities to reduce the project's water impacts to less than significant.

The proposed project will not result in a determination by the waste water treatment provider that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.

Impacts to storm drainage facilities have been previously discussed under the Hydrology and Water Quality section included within this analysis herein above. While the proposed project will result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction such facilities will not cause significant environmental effects.

The proposed project would be subject to the payment of any applicable connection charges and/or fees and extension of services in a manner which is compliant with the Department of Public Utilities standards, specifications, and policies.

Sanitary sewer and water service delivery is also subject to payment of applicable connection charges and/or fees; compliance with the Department of Public Utilities standards, specifications, and policies; the rules and regulations of the California Public Utilities Commission and California Health Services; and, implementation of the City-wide program for the completion of incremental expansions to facilities for planned water supply, treatment, and storage.

The project site will be serviced by solid waste division, which has adequate capacity to serve the project.

In conclusion, with MEIR mitigation measures incorporated, the proposed project would not result in any utility and service system environmental impacts beyond those analyzed in the MEIR SCH No. 2012111015.

Mitigation Measures

1. The proposed project shall implement and incorporate, as applicable, the utilities related mitigation measures as identified in the attached MEIR SCH No. 2012111015 Fresno General Plan Mitigation Monitoring Checklist dated March 2019.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?			X	
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X	
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?			X	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X	

There are no State Responsibility Areas (SRAs) within the vicinity of the project site. The project site is not categorized as a "Very High" Fire Hazard Severity Zone (FHSZ) by CalFire. Although this CEQA topic only applies to areas within an SRA or Very High FHSZ, out of an abundance of caution, these checklist questions are analyzed below.

The project site will connect to an existing network of City streets. The proposed circulation improvements include four access points, all of which would be available during an emergency. The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

The risk of wildfire is related to a variety of parameters, including fuel loading (vegetation), fire weather (winds, temperatures, humidity levels and fuel moisture contents) and topography (degree of slope). Steep slopes contribute to fire hazard by intensifying the effects of wind and making fire suppression difficult. Fuels such as grass are highly flammable because they have a high surface area to mass ratio and require less heat to reach the ignition point. The project site is located in an area that is predominately agricultural and urban, which is not considered at a significant risk of wildlife.

The project includes development of infrastructure (water, sewer, and storm drainage) required to support the proposed commercial, retail, fast food, and fuel uses. The project site is surrounded by existing and future urban development. The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project would not require the installation or maintenance of infrastructure that may exacerbate fire risk.

The proposed project would require the installation of storm drainage infrastructure to ensure that storm waters properly drain from the project site and does not result in downstream flooding or major drainage changes. The proposed storm drainage plan includes an engineered network of storm drain lines and landscaped bioswales. The storm drainage plan was designed and engineered to ensure proper construction of storm drainage infrastructure to control runoff and prevent flooding, erosion, and sedimentation.

Runoff from the project site currently flows to the existing City storm drains located in E. North Avenue and S. Orange Avenue. Upon development of the site, stormwater would flow to the on-site landscaped bioswales and/or the existing storm drains in the adjacent roadways. Additionally, the project site is located within FEMA Zone X (un-shaded), indicating that the site is located outside of the 100-year flood hazard zone. Further, because the site is essentially flat and located in an existing urbanized area of the City, downstream landslides would not occur.

Landslides include rockfalls, deep slope failure, and shallow slope failure. Factors such as the geological conditions, drainage, slope, vegetation, and others directly affect the potential for landslides. One of the most common causes of landslides is construction activity that is associated with road building (i.e. cut and fill). The project site is relatively flat; therefore, the potential for a landslide in the project site is essentially non-existent.

In conclusion, the proposed project would not result in any wildfire environmental impacts.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X	
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

The proposed project is considered to be proposed at a size and scope which is neither a direct or indirect detriment to the quality of the environment through reductions in habitat, populations, or examples of local history (through either individual or cumulative impacts).

The proposed project does not have the potential to degrade the quality of the environment or reduce the habitat of wildlife species and will not threaten plant communities or endanger any floral or faunal species. Furthermore the project has no potential to eliminate important examples of major periods in history.

In summary, given the mitigation measures required of the proposed project and the analysis detailed in the preceding Initial Study, the proposed project:

- Does not have environmental impacts which will cause substantial adverse effects on human beings, either directly nor indirectly.
- Does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish/wildlife or native plant species (or cause their population to drop below self-

sustaining levels), does not threaten to eliminate a native plant or animal community, and does not threaten or restrict the range of a rare or endangered plant or animal.

- Does not eliminate important examples of elements of California history or prehistory.
- Does not have impacts which would be cumulatively considerable even though individually limited.

Therefore, there are no mandatory findings of significance and preparation of an Environmental Impact Report is not warranted for this project.

MEIR Mitigation Measure Monitoring Checklist for EA No. P18-02233

March 20

INCORPORATING MEASURES FROM THE MASTER ENVIRONMENTAL IMPACT REPORT (MEIR) CERTIFIED FOR THE CITY OF FRESNO GENERAL PLAN UPDATE (SCH No. 2012111015)

This mitigation measure monitoring and reporting checklist was prepared pursuant to California Environmental Quality Act (CEQA) Guidelines Section 15097 and Section 21081.6 of the Public Resources Code (PRC). It was certified as part of the Fresno City Council's approval of the MEIR for the Fresno General Plan update (Fresno City Council Resolution 2014-225, adopted December 18, 2014).

Letter designations to the right of each MEIR mitigation measure listed in this Exhibit note how the mitigation measure relates to the environmental assessment of the above-listed project, according to the key found at right and at the bottoms of the following pages:

A - Incorporated into Project
B - Mitigated
C - Mitigation in Progress
D - Responsible Agency Contacted
E - Part of City-wide Program
F - Not Applicable

The timing of implementing each mitigation measure is identified in in the checklist, as well as identifies the entity responsible for verifying that the mitigation measures applied to a project are performed. Project applicants are responsible for providing evidence that mitigation measures are implemented. As lead agency, the City of Fresno is responsible for verifying that mitigation is performed/completed.

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
Aesthetics:								
AES-1. Lighting systems for street and parking areas shall include shields to direct light to the roadway surfaces and parking areas. Vertical shields on the light fixtures shall also be used to direct light away from adjacent light sensitive land uses such as residences. **Verification comments:**	Prior to issuance of building permits	Public Works Department (PW) and Development & Resource Management Dept. (DARM)	X					

Aesthetics *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
AES-2: Lighting systems for public facilities such as active play areas shall provide adequate illumination for the activity; however, low intensity light fixtures and shields shall be used to minimize spillover light onto adjacent properties. **Verification comments:**	Prior to issuance of building permits	DARM						X
AES-3: Lighting systems for non-residential uses, not including public facilities, shall provide shields on the light fixtures and orient the lighting system away from adjacent properties. Low intensity light fixtures shall also be used if excessive spillover light onto adjacent properties will occur. **Verification comments:**	Prior to issuance of building permits	DARM	X					
AES-4: Lighting systems for freestanding signs shall not exceed 100 foot Lamberts (FT-L) when adjacent to streets which have an average light intensity of less than 2.0 horizontal footcandles and shall not exceed 500 FT-L when adjacent to streets which have an average light intensity of 2.0 horizontal footcandles or greater. **Verification comments:**	Prior to issuance of building permits	DARM	X					

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Aesthetics *(continued)***:**

AES-5: Materials used on building facades shall be non-reflective. **Verification comments:**	Prior to development project approval	DARM	X					

Air Quality:

AIR-1: Projects that include five or more heavy-duty truck deliveries per day with sensitive receptors located within 300 feet of the truck loading area shall provide a screening analysis to determine if the project has the potential to exceed criteria pollutant concentration based standards and thresholds for NO2 and PM2.5. If projects exceed screening criteria, refined dispersion modeling and health risk assessment shall be accomplished and if needed, mitigation measures to reduce impacts shall be included in the project to reduce the impacts to the extent feasible. Mitigation measures include but are not limited to: • Locate loading docks and truck access routes as far from sensitive receptors as reasonably possible considering site design limitations to comply with other City design standards. • Post signs requiring drivers to limit idling to 5 minutes or less. **Verification comments:**	Prior to development project approval	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Air Quality *(continued)***:**

AIR-2: Projects that result in an increased cancer risk of 10 in a million or exceed criteria pollutant ambient air quality standards shall implement site-specific measures that reduce toxic air contaminant (TAC) exposure to reduce excess cancer risk to less than 10 in a million. Possible control measures include but are not limited to: • Locate loading docks and truck access routes as far from sensitive receptors as reasonably possible considering site design limitations to comply with other City design standards. • Post signs requiring drivers to limit idling to 5 minutes or less • Construct block walls to reduce the flow of emissions toward sensitive receptors • Install a vegetative barrier downwind from the TAC source that can absorb a portion of the diesel PM emissions • For projects proposing to locate a new building containing sensitive receptors near existing sources of TAC emissions, install HEPA filters in HVAC systems to reduce TAC emission levels exceeding risk thresholds. • Install heating and cooling services at truck stops to eliminate the need for idling during overnight stops to run onboard systems. *(continued on next page)*	Prior to development project approval	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Air Quality *(continued)***:**

AIR-2 *(continued from previous page)* • For large distribution centers where the owner controls the vehicle fleet, provide facilities to support alternative fueled trucks powered by fuels such as natural gas or bio-diesel • Utilize electric powered material handling equipment where feasible for the weight and volume of material to be moved. **Verification comments:**	*[see previous page]*	*[see previous page]*						
AIR-3: Require developers proposing projects on ARB's list of projects in its Air Quality and Land Use Handbook (Handbook) warranting special consideration to prepare a cumulative health risk assessment when sensitive receptors are located within the distance screening criteria of the facility as listed in the ARB Handbook. **Verification comments:**	Prior to development project approval	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Air Quality *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
AIR-4: Require developers of projects containing sensitive receptors to provide a cumulative health risk assessment at project locations exceeding ARB Land Use Handbook distance screening criteria or newer criteria that may be developed by the San Joaquin Valley Air Pollution Control District (SJVAPCD). **Verification comments:**	Prior to development project approval	DARM						X
AIR-5: Require developers of projects with the potential to generate significant odor impacts as determined through review of SJVAPCD odor complaint history for similar facilities and consultation with the SJVAPCD to prepare an odor impact assessment and to implement odor control measures recommended by the SJVAPCD or the City to the extent needed to reduce the impact to less than significant. **Verification comments:**	Prior to development project approval	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Biological Resources:

BIO-1: Construction of a proposed project should avoid, where possible, vegetation communities that provide suitable habitat for a special-status species known to occur within the Planning Area. If construction within potentially suitable habitat must occur, the presence/absence of any special-status plant or wildlife species must be determined prior to construction, to determine if the habitat supports any special-status species. If special-status species are determined to occupy any portion of a project site, avoidance and minimization measures shall be incorporated into the construction phase of a project to avoid direct or incidental take of a listed species to the greatest extent feasible. **Verification comments:**	Prior to development project approval	DARM	X					
BIO-2: Direct or incidental take of any state or federally listed species should be avoided to the greatest extent feasible. If construction of a proposed project will result in the direct or incidental take of a listed species, consultation with the resources agencies and/or additional permitting may be required. Agency consultation through the California Department of Fish and Wildlife (CDFW) 2081 and U.S. Fish and Wildlife Service (USFWS) Section 7 or Section 10 permitting processes must take place prior to any action that *(continued on next page)*	Prior to development project approval	DARM	X					

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Biological Resources *(continued)*:

BIO-2 *(continued from previous page)* may result in the direct or incidental take of a listed species. Specific mitigation measures for direct or incidental impacts to a listed species will be determined on a case-by-case basis through agency consultation. **Verification comments:**	*[see previous page]*	*[see previous page]*						
BIO-3: Development within the Planning Area should avoid, where possible, special-status natural communities and vegetation communities that provide suitable habitat for special-status species. If a proposed project will result in the loss of a special-status natural community or suitable habitat for special-status species, compensatory habitat-based mitigation is required under CEQA and the California Endangered Species Act (CESA). Mitigation will consist of preserving on-site habitat, restoring similar habitat or purchasing off-site credits from an approved mitigation bank. Compensatory mitigation will be determined through consultation with the City and/or resource agencies. An appropriate mitigation strategy and ratio will be agreed upon by the developer and lead agency to reduce project impacts to special-status natural communities to a less than significant *(continued on next page)*	Prior to development project approval	DARM	X					

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Biological Resources *(continued)*:

BIO-3 *(continued from previous page)*: level. Agreed-upon mitigation ratios will depend on the quality of the habitat and presence/absence of a special-status species. The specific mitigation for project level impacts will be determined on a case-by-case basis. **Verification comments:**	*[see previous page]*	*[see previous page]*						
BIO-4: Proposed projects within the Planning Area should avoid, if possible, construction within the general nesting season of February through August for avian species protected under Fish and Game Code 3500 and the Migratory Bird Treaty Act (MBTA), if it is determined that suitable nesting habitat occurs on a project site. If construction cannot avoid the nesting season, a pre-construction clearance survey must be conducted to determine if any nesting birds or nesting activity is observed on or within 500-feet of a project site. If an active nest is observed during the survey, a biological monitor must be on site to ensure that no proposed project activities would impact the active nest. A suitable buffer will be established around the active nest until the nestlings have fledged and the nest is no longer active. Project activities *(continued on next page)*	Prior to development project approval and during construction activities	DARM	X					

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Biological Resources *(continued)***:**

BIO-4 *(continued from previous page)***:** may continue in the vicinity of the nest only at the discretion of the biological monitor. **Verification comments:**	*[see previous page]*	*[see previous page]*						
BIO-5: If a proposed project will result in the removal or impact to any riparian habitat and/or a special-status natural community with potential to occur in the Planning Area, compensatory habitat-based mitigation shall be required to reduce project impacts. Compensatory mitigation must involve the preservation or restoration or the purchase of off-site mitigation credits for impacts to riparian habitat and/or a special-status natural community. Mitigation must be conducted in-kind or within an approved mitigation bank in the region. The specific mitigation ratio for habitat-based mitigation will be determined through consultation with the appropriate agency (*i.e*., CDFW or USFWS) on a case-by-case basis. **Verification comments:**	Prior to development project approval	DARM	X					

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Biological Resources *(continued)*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
BIO-6: Project impacts that occur to riparian habitat may also result in significant impacts to streambeds or waterways protected under Section 1600 of Fish and Wildlife Code and Section 404 of the CWA. CDFW and/or USACE consultation, determination of mitigation strategy, and regulatory permitting to reduce impacts, as required for projects that remove riparian habitat and/or alter a streambed or waterway, shall be implemented. **Verification comments:**	Prior to development project approval	DARM						X
BIO-7: Project-related impacts to riparian habitat or a special-status natural community may result in direct or incidental impacts to special-status species associated with riparian or wetland habitats. Project impacts to special-status species associated with riparian habitat shall be mitigated through agency consultation, development of a mitigation strategy, and/or issuing incidental take permits for the specific special-status species, as determined by the CDFW and/or USFWS. **Verification comments:**	Prior to development project approval	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Biological Resources *(continued)***:**

			A	B	C	D	E	F
BIO-8: If a proposed project will result in the significant alteration or fill of a federally protected wetland, a formal wetland delineation conducted according to U.S. Army Corps of Engineers (USACE) accepted methodology is required for each project to determine the extent of wetlands on a project site. The delineation shall be used to determine if federal permitting and mitigation strategy are required to reduce project impacts. Acquisition of permits from USACE for the fill of wetlands and USACE approval of a wetland mitigation plan would ensure a "no net loss" of wetland habitat within the Planning Area. Appropriate wetland mitigation/creation shall be implemented in a ratio according to the size of the impacted wetland. **Verification comments:**	Prior to development project approval	DARM						X
BIO-9: In addition to regulatory agency permitting, Best Management Practices (BMPs) identified from a list provided by the USACE shall be incorporated into the design and construction phase of the project to ensure that no pollutants or siltation drain into a federally protected wetland. Project design features such as fencing, appropriate drainage and *(continued on next page)*	Prior to development project approval; but for long-term operational BMPs, prior to issuance of occupancy	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Biological Resources *(continued)*:

BIO-9 *(continued from previous page)*: incorporating detention basins shall assist in ensuring project-related impacts to wetland habitat are minimized to the greatest extent feasible. **Verification comments:**	*[see previous page]*	*[see previous page]*	

Cultural Resources:

			A	B	C	D	E	F
CUL-1: If previously unknown resources are encountered before or during grading activities, construction shall stop in the immediate vicinity of the find and a qualified historical resources specialist shall be consulted to determine whether the resource requires further study. The qualified historical resources specialist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with Section 15064.5 of the CEQA Guidelines and the City's Historic Preservation Ordinance. If the resources are determined to be unique historical resources as defined under Section 15064.5 of the CEQA Guidelines, measures shall be identified by the monitor and *(continued on next page)*	Prior to commencement of, and during, construction activities	DARM	X					

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
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F - Not Applicable

Cultural Resources *(continued)*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
CUL-1 *(continued from previous page)* recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these. Any historical artifacts recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-germ preservation to allow future scientific study. **Verification comments:**	*[see previous page]*	*[see previous page]*						
CUL-2: Subsequent to a preliminary City review of the project grading plans, if there is evidence that a project will include excavation or construction activities within previously undisturbed soils, a field survey and literature search for prehistoric archaeological resources shall be conducted. The following procedures shall be followed. If prehistoric resources are not found during either the field survey or literature search, excavation and/or construction activities can commence. In the event that buried prehistoric *(continued on next page)*	Prior to commencement of, and during, construction activities	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Cultural Resources *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A-F
CUL-2 *(continued from previous page)* archaeological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified archaeologist shall be consulted to determine whether the resource requires further study. The qualified archaeologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered resources, including but not limited to excavation of the finds and evaluation of the finds in accordance with CEQA Guidelines Section 15064.5. If the resources are determined to be unique prehistoric archaeological resources as defined under Section 15064.5 of the CEQA Guidelines, mitigation measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any prehistoric archaeological artifacts recovered as a result of mitigation shall be provided *(continued on next page)*	*[see previous page]*	*[see previous page]*	

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Cultural Resources *(continued)***:**

CUL-2 *(further continued from previous two pages)* to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study. If prehistoric resources are found during the field survey or literature review, the resources shall be inventoried using appropriate State record forms and submit the forms to the Southern San Joaquin Valley Information Center. The resources shall be evaluated for significance. If the resources are found to be significant, measures shall be identified by the qualified archaeologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. In addition, appropriate mitigation for excavation and construction activities in the vicinity of the resources found during the field survey or literature review shall include an archaeological monitor. The monitoring period shall be determined by the qualified archaeologist. If additional prehistoric archaeological resources are found during *(continued on next page)*	*[see Page 14]*	*[see Page 14]*	

Cultural Resources *(continued)*:

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
CUL-2 *(further continued from previous three pages)* excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed. **Verification comments:**	*[see Page 14]*	*[see Page 14]*						
CUL-3: Subsequent to a preliminary City review of the project grading plans, if there is evidence that a project will include excavation or construction activities within previously undisturbed soils, a field survey and literature search for unique paleontological/geological resources shall be conducted. The following procedures shall be followed: If unique paleontological/geological resources are not found during either the field survey or literature search, excavation and/or construction activities can commence. In the event that unique paleontological/geological resources are discovered during excavation and/or construction activities, construction shall stop in the immediate vicinity of the find and a qualified paleontologist shall be consulted to determine whether the resource requires further study. The qualified paleontologist shall make recommendations to the City on the measures that shall be implemented to protect the discovered *(continued on next page)*	Prior to commencement of, and during, construction activities	DARM						X

A - Incorporated into Project
B - Mitigated
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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
CUL-3 *(continued from previous page)* resources, including but not limited to, excavation of the finds and evaluation of the finds. If the resources are determined to be significant, mitigation measures shall be identified by the monitor and recommended to the Lead Agency. Appropriate mitigation measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. No further grading shall occur in the area of the discovery until the Lead Agency approves the measures to protect these resources. Any paleontological/geological resources recovered as a result of mitigation shall be provided to a City-approved institution or person who is capable of providing long-term preservation to allow future scientific study. If unique paleontological/geological resources are found during the field survey or literature review, the resources shall be inventoried and evaluated for significance. If the resources are found to be significant, mitigation measures shall be identified by the qualified paleontologist. Similar to above, appropriate mitigation measures for significant resources could include avoidance or capping, incorporation of the site in green space, parks, or open space, or data recovery excavations of the finds. In addition, appropriate mitigation for excavation and construction activities in the vicinity of the *(continued on next page)*	*[see previous page]*	*[see previous page]*						

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Cultural Resources *(continued)*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
CUL-3 *(further continued from previous two pages)* resources found during the field survey or literature review shall include a paleontological monitor. The monitoring period shall be determined by the qualified paleontologist. If additional paleontological/geological resources are found during excavation and/or construction activities, the procedure identified above for the discovery of unknown resources shall be followed. **Verification comments:**	*[see Page 17]*	*[see Page 17]*						
CUL-4: In the event that human remains are unearthed during excavation and grading activities of any future development project, all activity shall cease immediately. Pursuant to Health and Safety Code (HSC) Section 7050.5, no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98(a). If the remains are determined to be of Native American descent, the coroner shall within 24 hours notify the Native American Heritage Commission (NAHC). The NAHC shall then contact the most *(continued on next page)*	Prior to commencement of, and during, construction activities	DARM	X					

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Cultural Resources *(continued)***:**

CUL-4 *(continued from previous page)* likely descendent of the deceased Native American, who shall then serve as the consultant on how to proceed with the remains. Pursuant to PRC Section 5097.98(b), upon the discovery of Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located is not damaged or disturbed by further development activity until the landowner has discussed and conferred with the most likely descendants regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment. **Verification comments:**	*[see previous page]*	*[see previous page]*	

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Hazards and Hazardous Materials

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
HAZ-1: Re-designate the existing vacant land proposed for low density residential located northwest of the intersection of East Garland Avenue and North Dearing Avenue and located within Fresno Yosemite International Airport Zone 1-RPZ, to Open Space. **Verification comments:**	Prior to development approvals	DARM						
HAZ-2: Limit the proposed low density residential (1 to 3 dwelling units per acre) located northwest of the airport, and located within Fresno Yosemite International Airport Zone 3-Inner Turning Area, to 2 dwelling units per acre or less. **Verification comments:**	Prior to development approvals	DARM						X
HAZ-3: Re-designate the current area within Fresno Yosemite International Airport Zone 5-Sideline located northeast of the airport to Public Facilities-Airport or Open Space. **Verification comments:**	Prior to development approvals	DARM						X

A - Incorporated into Project
B - Mitigated
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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
Hazards and Hazardous Materials *(continued)***:**								
HAZ-4: Re-designate the current vacant lots at the northeast corner of Kearney Boulevard and South Thorne Avenue to Public Facilities-Airport or Open Space. **Verification comments:**	Prior to development approvals	DARM						X
HAZ-5: Prohibit residential uses within Safety Zone 1 northwest of the Hawes Avenue and South Thorne Avenue intersection. **Verification comments:**	Prior to development approvals	DARM						X
HAZ-6: Establish an alternative Emergency Operations Center in the event the current Emergency Operations Center is under redevelopment or blocked. **Verification comments:**	Prior to redevelopment of the current Emergency Operations Center	Fresno Fire Department and Mayor/ City Manager's Office						X

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Hydrology and Water Quality

			A	B	C	D	E	F
HYD-1: The City shall develop and implement water conservation measures to reduce the per capita water use to 215 gallons per capita per day. **Verification comments:**	Prior to water demand exceeding water supply	Department of Public Utilities (DPU)					X	
HYD-2: The City shall continue to be an active participant in the Kings Water Authority and the implementation of the Kings Basin IRWMP. **Verification comments:**	Ongoing	DPU						X
HYD-5.1: The City and partnering agencies shall implement the following measures to reduce the impacts on the capacity of existing or planned storm drainage Master Plan collection systems to less than significant. • Implement the existing Storm Drainage Master Plan (SDMP) for collection systems in drainage areas where the amount of imperviousness is unaffected by the change in land uses. *(continued on next page)*	Prior to exceedance of capacity of existing stormwater drainage facilities	Fresno Metropolitan Flood Control District (FMFCD), DARM, and PW						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Hydrology and Water Quality *(continued)***:**

HYD-5.1 *(continued from previous page)* • Update the SDMP in those drainage areas where the amount of imperviousness increased due to the change in land uses to determine the changes in the collection systems that would need to occur to provide adequate capacity for the stormwater runoff from the increased imperviousness. • Implement the updated SDMP to provide stormwater collection systems that have sufficient capacity to convey the peak runoff rates from the areas of increased imperviousness. Require developments that increase site imperviousness to install, operate, and maintain FMFCD approved on-site detention systems to reduce the peak runoff rates resulting from the increased imperviousness to the peak runoff rates that will not exceed the capacity of the existing stormwater collection systems. **Verification comments:**	*[see previous page]*	*[see previous page]*	

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Hydrology and Water Quality *(continued)*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
HYD-5.2: The City and partnering agencies shall implement the following measures to reduce the impacts on the capacity of existing or planned storm drainage Master Plan retention basins to less than significant: Consult the SDMP to analyze the impacts to existing and planned retention basins to determine remedial measures required to reduce the impact on retention basin capacity to less than significant. Remedial measures would include: • Increase the size of the retention basin through the purchase of more land or deepening the basin or a combination for planned retention basins. • Increase the size of the emergency relief pump capacity required to pump excess runoff volume out of the basin and into adjacent canal that convey the stormwater to a disposal facility for existing retention basins. • Require developments that increase runoff volume to install, operate, and maintain, Low Impact Development (LID) measures to reduce runoff volume to the runoff volume that will not exceed the capacity of the existing retention basins. **Verification comments:**	Prior to exceedance of capacity of existing retention basin facilities	FMFCD, DARM, and PW						X

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Hydrology and Water Quality *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
HYD-5.3: The City and partnering agencies shall implement the following measures to reduce the impacts on the capacity of existing or planned storm drainage Master Plan urban detention (stormwater quality) basins to less than significant. Consult the SDMP to determine the impacts to the urban detention basin weir overflow rates and determine remedial measures required to reduce the impact on the detention basin capacity to less than significant. Remedial measures would include: • Modify overflow weir to maintain the suspended solids removal rates adopted by the FMFCD Board of Directors. • Increase the size of the urban detention basin to increase residence time by purchasing more land. The existing detention basins are already at the adopted design depth. • Require developments that increase runoff volume to install, operate, and maintain, Low Impact Development (LID) measures to reduce peak runoff rates and runoff volume to the runoff rates and volumes that will not exceed the weir overflow rates of the existing urban detention basins. **Verification comments:**	Prior to exceedance of capacity of existing urban detention basin (stormwater quality) facilities	FMFCD, DARM, and PW						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Hydrology and Water Quality *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
HYD-5.4: The City shall implement the following measures to reduce the impacts on the capacity of existing or planned storm drainage Master Plan pump disposal systems to less than significant. • Consult the SDMP to determine the extent and degree to which the capacity of the existing pump system will be exceeded. • Require new developments to install, operate, and maintain FMFCD design standard on-site detention facilities to reduce peak stormwater runoff rates to existing planned peak runoff rates. • Provide additional pump system capacity to maximum allowed by existing permitting to increase the capacity to match or exceed the peak runoff rates determined by the SDMP. **Verification comments:**	Prior to exceedance of capacity of existing pump disposal systems	FMFCD, DARM, and PW						X

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Hydrology and Water Quality *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
• **HYD-5.5:** The City shall work with FMFCD to develop and adopt an update to the SDMP for the Southeast Development Area that would be adequately designed to collect, convey and dispose of runoff at the rates and volumes which would be generated by the planned land uses in that area. **Verification comments:**	Prior to development approvals in the Southeast Development Area	FMFCD, DARM, and PW						X

Public Services:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
PS-1: As future fire facilities are planned, the fire department shall evaluate if specific environmental effects would occur. Typical impacts from fire facilities include noise, traffic, and lighting. Typical mitigation to reduce these impacts includes: • *Noise:* Barriers and setbacks on the fire department sites. • *Traffic:* Traffic devices for circulation and a "keep clear zone" during emergency responses. • *Lighting:* Provision of hoods and deflectors on lighting fixtures on the fire department sites. **Verification comments:**	During the planning process for future fire department facilities	DARM						X

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Public Services *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
PS-2: As future police facilities are planned, the police department shall evaluate if specific environmental effects would occur. Typical impacts from police facilities include noise, traffic, and lighting. Typical mitigation to reduce potential impacts from police department facilities includes: • *Noise:* Barriers and setbacks on the police department sites. • *Traffic:* Traffic devices for circulation. • *Lighting:* Provision of hoods and deflectors on lighting fixtures on the police department sites. **Verification comments:**	During the planning process for future Police Department facilities	DARM						
PS-3: As future public and private school facilities are planned, school districts shall evaluate if specific environmental effects would occur with regard to public schools, and DARM shall evaluate other school facilities. Typical impacts from school facilities include noise, traffic, and lighting. Typical mitigation to reduce potential impacts from school facilities includes: *(continued on next page)*	During the planning process for future school facilities	DARM, local school districts, and the Division of the State Architect						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

Public Services *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
PS-3 *(continued from previous page)* • *Noise*: Barriers and setbacks placed on school sites. • *Traffic*: Traffic devices for circulation. • *Lighting*: Provision of hoods and deflectors on lighting fixtures for stadium lights. **Verification comments:**	*[see previous page]*	*[see previous page]*						
PS-4: As future parks and recreational facilities are planned, the City shall evaluate if specific environmental effects would occur. Typical impacts from school facilities include noise, traffic, and lighting. Typical mitigation to reduce potential impacts from park and recreational facilities includes: • *Noise*: Barriers and setbacks placed on school sites. • *Traffic*: Traffic devices for circulation. • *Lighting*: Provision of hoods and deflectors on lighting fixtures for outdoor play area/field lights. **Verification comments:**	During the planning process for future park and recreation facilities	DARM						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Public Services *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
PS-5: As future detention, court, library, and hospital facilities are planned, the appropriate agencies shall evaluate if specific environmental effects would occur. Typical impacts from court, library, and hospital facilities include noise, traffic, and lighting. Typical mitigation to reduce potential impacts includes: • *Noise:* Barriers and setbacks placed on school sites. • *Traffic:* Traffic devices for circulation. • *Lighting:* Provision of hoods and deflectors on outdoor lighting fixtures. **Verification comments:**	During the planning process for future detention, court, library, and hospital facilities	DARM, to the extent that agencies constructing these facilities are subject to City of Fresno regulation						X

Utilities and Service Systems

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-1: The City shall develop and implement a wastewater master plan update. **Verification comments:**	Prior to wastewater conveyance and treatment demand exceeding capacity	DPU						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)***:**

USS-2: Prior to exceeding existing wastewater treatment capacity, the City shall evaluate the wastewater system and shall not approve additional development that contributes wastewater to the wastewater treatment facility that could exceed capacity until additional capacity is provided. By approximately the year 2025, the City shall construct the following improvements: • Construct an approximately 70 MGD expansion of the Regional Wastewater Treatment and Reclamation Facility and obtain revised waste discharge permits as the generation of wastewater is increased. • Construct an approximately 0.49 MGD expansion of the North Facility and obtain revised waste discharge permits as the generation of wastewater is increased. **Verification comments:**	Prior to exceeding existing wastewater treatment capacity	DPU						X
USS-3: Prior to exceeding existing wastewater treatment capacity, the City shall evaluate the wastewater system and shall not approve additional development that contributes wastewater to the wastewater treatment facility that could exceed capacity until additional capacity is provided. After *(continued on next page)*	Prior to exceeding existing wastewater treatment capacity	DPU						X

A - Incorporated into Project
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D - Responsible Agency Contacted
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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)*:

			A	B	C	D	E	F
USS-3 *(continued from previous page)* approximately the year 2025, the City shall construct the following improvements: • Construct an approximately 24 MGD wastewater treatment facility within the Southeast Development Area and obtain revised waste discharge requirements as the generation of wastewater is increased. • Construct an approximately 9.6 MGD expansion of the Regional Wastewater Treatment and Reclamation Facility and obtain revised waste discharge permits as the generation of wastewater is increased. **Verification comments:**	*[see previous page]*	*[see previous page]*						
USS-4: A Traffic Control/Traffic Management Plan to address traffic impacts during construction of water and sewer facilities shall be prepared and implemented, subject to approval by the City (and Fresno County, when work is being done in unincorporated area roadways). The plan shall identify access and parking restrictions, pavement markings and signage, and hours of construction and for deliveries. It shall include haul routes, the notification plan, and coordination with emergency service providers and schools. **Verification comments:**	Prior to construction of water and sewer facilities	PW for work in the City; PW and Fresno County Public Works and Planning when unincorporated area roadways are involved						X

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B - Mitigated
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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)***:**

USS-5: Prior to exceeding capacity within the existing wastewater collection system facilities, the City shall evaluate the wastewater collection system and shall not approve additional development that would generate additional wastewater and exceed the capacity of a facility until additional capacity is provided. By approximately the year 2025, the following capacity improvements shall be provided. • Orange Avenue Trunk Sewer: This facility shall be improved between Dakota and Jensen Avenues. Approximately 37,240 feet of new sewer main shall be installed and approximately 5,760 feet of existing sewer main shall be rehabilitated. The size of the new sewer main shall range from 27 inches to 42 inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are RS03A, RL02, C01-REP, C02-REP, C03-REP, C04-REP, C05-REP, C06-REL and C07-REP. • Marks Avenue Trunk Sewer: This facility shall be improved between Clinton Avenue and Kearney Boulevard. Approximately 12,150 feet of new sewer main shall be installed. The size of the new sewer main shall range from 33 inches to 60 inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CM1-REP and CM2-REP. *(continued on next page)*	Prior to exceeding capacity within the existing wastewater collection system facilities	DPU						X

A - Incorporated into Project
B - Mitigated
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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)*:

USS-5 *(continued from previous page)* • North Avenue Trunk Sewer: This facility shall be improved between Polk and Fruit Avenues and also between Orange and Maple Avenues. Approximately 25,700 feet of new sewer main shall be installed. The size of the new sewer main shall range from 48 inches to 66 inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CN1-REL1 and CN3-REL1. • Ashlan Avenue Trunk Sewer: This facility shall be improved between Hughes and West Avenues and also between Fruit and Blackstone Avenues. Approximately 9,260 feet of new sewer main shall be installed. The size of the new sewer main shall range from 24 inches to 36 inches in diameter. The associated project designations in the 2006 Wastewater Master Plan are CA1-REL and CA2-REP. **Verification comments:**	*[see previous page]*	*[see previous page]*	

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-6: Prior to exceeding capacity within the existing 28 pipeline segments shown in Figures 1 and 2 in Appendix J-1, the City shall evaluate the wastewater collection system and shall not approve additional development that would generate additional wastewater and exceed the capacity of one of the 28 pipeline segments until additional capacity is provided. **Verification comments:**	Prior to exceeding capacity within the existing 28 pipeline seg-ments shown in Figures 1 and 2 in Appendix J-1 of the MEIR	DPU						X
USS-7: Prior to exceeding existing water supply capacity, the City shall evaluate the water supply system and shall not approve additional development that demand additional water until additional capacity is provided. By approximately the year 2025, the following capacity improvements shall be provided. • Construct an approximately 80 million gallon per day (MGD) surface water treatment facility near the intersection of Armstrong and Olive Avenues, in accordance with Chapter 9 and Figure 9-1 of the City of Fresno Metropolitan Water Resources Management Plan Update (2014 Metro Plan Update) Phase 2 Report, dated January 2012. *(continued on next page)*	Prior to exceeding existing water supply capacity	DPU						X

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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-7 *(continued from previous page)* • Construct an approximately 30 MGD expansion of the existing northeast surface water treatment facility for a total capacity of 60 MGD, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. • Construct an approximately 20 MGD surface water treatment facility in the southwest portion of the City, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. **Verification comments:**	*[see previous page]*	*[see previous page]*						
USS-8: Prior to exceeding capacity within the existing water conveyance facilities, the City shall evaluate the water conveyance system and shall not approve additional development that would demand additional water and exceed the capacity of a facility until additional capacity is provided. The following capacity improvements shall be provided by approximately 2025. • Construct 65 new groundwater wells, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. *(continued on next page)*	Prior to exceeding capacity within the existing water conveyance facilities	DPU						X

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)*:

USS-8 *(continued from previous page)* • Construct a 2.0 million gallon potable water reservoir (Reservoir T2) near the intersection of Clovis and California Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. • Construct a 3.0 million gallon potable water reservoir (Reservoir T3) near the intersection of Temperance and Dakota Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. • Construct a 3.0 million gallon potable water reservoir (Reservoir T4) in the Downtown Planning Area, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. • Construct a 4.0 million gallon potable water reservoir (Reservoir T5) near the intersection of Ashlan and Chestnut Avenues, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. • Construct a 4.0 million gallon potable water reservoir (Reservoir T6) near the intersection of Ashlan Avenue and Highway 99, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. *(continued on next page)*	*[see previous page]*	*[see previous page]*	

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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-8 *(continued from previous two pages)* • Construct 50.3 miles of regional water transmission mains ranging in size from 24-inch to 48-inch diameter, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. • Construct 95.9 miles of 16-inch diameter transmission grid mains, in accordance with Chapter 9 and Figure 9-1 of the 2014 Metro Plan Update. **Verification comments:**	*[see Page 37]*	*[see Page 37]*						
USS-9: Prior to exceeding capacity within the existing water conveyance facilities, the City shall evaluate the water conveyance system and shall not approve additional development that would demand additional water and exceed the capacity of a facility until additional capacity is provided. The following capacity improvements shall be provided after approximately the year 2025 and additional water conveyance facilities shall be provided prior to exceedance of capacity within the water conveyance facilities to accommodate full buildout of the General Plan Update. *(continued on next page)*	Prior to exceeding capacity within the existing water conveyance facilities	DPU						X

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-9 *(continued from previous page)* • Construct a 4.0 million gallon potable water reservoir (SEDA Reservoir 1) within the northern part of the Southeast Development Area. • Construct a 4.0 million gallon potable water reservoir (SEDA Reservoir 2) within the southern part of the Southeast Development Area. Additional water conveyance facilities shall be provided prior to exceedance of capacity within the water conveyance facilities to accommodate full buildout of the General Plan Update. **Verification comments:**	*[see previous page]*	*[see previous page]*						

Utilities and Service Systems - ***Hydrology and Water Quality***

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-10: In order to maintain Fresno Irrigation District canal operability, FMFCD shall maintain operational intermittent flows during the dry season, within defined channel capacity and downstream capture capabilities, for recharge. **Verification comments:**	During the dry season	Fresno Irrigation District (FID)						X

A - Incorporated into Project
B - Mitigated
C - Mitigation in Process
D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources:*

USS-11: When FMFCD proposes to provide drainage service outside of urbanized areas: (a) FMFCD shall conduct preliminary investigations on undeveloped lands outside of highly urbanized areas. These investigations shall examine wetland hydrology, vegetation and soil types. These preliminary investigations shall be the basis for making a determination on whether or not more in-depth wetland studies shall be necessary. If the proposed project site does not exhibit wetland hydrology, support a prevalence of wetland vegetation and wetland soil types then no further action is required. (b) Where proposed activities could have an impact on areas verified by the Corps as jurisdictional wetlands or waters of the U.S. (urban and rural streams, seasonal wetlands, and vernal pools), FMFCD shall obtain the necessary Clean Water Act, Section 404 permits for activities where fill material shall be placed in a wetland, obstruct the flow or circulation of waters of the United States, impair or reduce the reach of such waters. As part of FMFCD's Memorandum of Understanding with CDFG, Section 404 and 401 permits would be obtained from the U.S. Army Corps of Engineers and from the *(continued on next page)*	Prior to development approvals outside of highly urbanized areas	California Regional Water Quality Control Board (RWQCB), and USACE						X

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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)**:***

USS-11 *(continued from previous page)* Regional Water Quality Control Board for any activity involving filling of jurisdictional waters). At a minimum, to meet "no net loss policy," the permits shall require replacement of wetland habitat at a 1:1 ratio. (c) Where proposed activities could have an impact on areas verified by the Corps as jurisdictional wetlands or waters of the U.S. (urban and rural streams, seasonal wetlands, and vernal pools), FMFCD shall submit and implement a wetland mitigation plan based on the wetland acreage verified by the U.S. Army Corps of Engineers. The wetland mitigation plan shall be prepared by a qualified biologist or wetland scientist experienced in wetland creation, and shall include the following or equally effective elements: i. Specific location, size, and existing hydrology and soils within the wetland creation area. ii. Wetland mitigation techniques, seed source, planting specifications, and required buffer setbacks. In addition, the mitigation plan shall ensure adequate water supply is provided to the created wetlands in order to maintain the proper *(continued on next page)*	*[see previous page]*	*[see previous page]*	

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)**:***

USS-11 *(continued from previous two pages)* hydrologic regimes required by the different types of wetlands created. Provisions to ensure the wetland water supply is maintained in perpetuity shall be included in the plan. iii. A monitoring program for restored, enhanced, created, and preserved wetlands on the project site. A monitoring program is required to meet three objectives; 1) establish a wetland creation success criteria to be met; 2) to specify monitoring methodology; 3) to identify as far as is possible, specific remedial actions that will be required in order to achieve the success criteria; and 4) to document the degree of success achieved in establishing wetland vegetation. (d) A monitoring plan shall be developed and implemented by a qualified biologist to monitor results of any on-site wetland restoration and creation for five years. The monitoring plan shall include specific success criteria, frequency and timing of monitoring, and assessment of whether or not maintenance activities are being carried out and how these shall be adjusted if necessary. *(continued on next page)*	*[see Page 41]*	*[see Page 41]*	

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)**:***

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-11 *(continued from previous three pages)* If monitoring reveals that success criteria are not being met, remedial habitat creation or restoration should be designed and implemented by a qualified biologist and subject to five years of monitoring as described above. Or (e) In lieu of developing a mitigation plan that outlines the avoidance, purchase, or creation of wetlands, FMFCD could purchase mitigation credits through a Corps approved Mitigation Bank. **Verification comments:**	*[see Page 41]*	*[see Page 41]*						
USS-12: When FMFCD proposes to provide drainage service outside in areas that support seasonal wetlands or vernal pools: (a) During facility design and prior to initiation of ground disturbing activities in areas that support seasonal wetlands or vernal pools, FMFCD shall conduct a preliminary rare plant assessment. The assessment will determine the likelihood on whether or not the project site could support rare plants. If it is determined that the project site would not support rare plants, then no further *(continued on next page)*	During facility design and prior to initiation of ground disturbing activities in areas that support seasonal wetlands or vernal pools	California Department of Fish & Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS)						X

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)**:***

USS-12 *(continued from previous page)* action is required. However, if the project site has the potential to support rare plants; then a rare plant survey shall be conducted. Rare plant surveys shall be conducted by qualified biologists in accordance with the most current CDFG/USFWS guidelines or protocols and shall be conducted at the time of year when the plants in question are identifiable. (b) Based on the results of the survey, prior to design approval, FMFCD shall coordinate with CDFG and/or implement a Section 7 consultation with USFWS, shall determine whether the project facility would result in a significant impact to any special status plant species. Evaluation of project impacts shall consider the following: • The status of the species in question (*e.g.*, officially listed by the State or Federal Endangered Species Acts). • The relative density and distribution of the on-site occurrence versus typical occurrences of the species in question. *(continued on next page)*	*[see previous page]*	*[see previous page]*	

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)*:

USS-12 *(continued from previous two pages)* • The habitat quality of the on-site occurrence relative to historic, current or potential distribution of the population. (c) Prior to design approval, and in consultation with the CDFG and/or the USFWS, FMFCD shall prepare and implement a mitigation plan, in accordance with any applicable State and/or federal statutes or laws, that reduces impacts to a less than significant level. **Verification comments:**	*[see Page 44]*	*[see Page 44]*						
USS-13: When FMFCD proposes to provide drainage service outside in areas that support seasonal wetlands or vernal pools: (a) During facility design and prior to initiation of ground disturbing activities in areas that support seasonal wetlands or vernal pools, FMFCD shall conduct a preliminary survey to determine the presence of listed vernal pool crustaceans. *(continued on next page)*	During facility design and prior to initiation of ground disturbing activities in areas that support seasonal wetlands or vernal pools	CDFW and USFWS						X

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)*:

USS-13 *(continued from previous page)* (b) If potential habitat (vernal pools, seasonally inundated areas) or fairy shrimp exist within areas proposed to be disturbed, FMFCD shall complete the first and second phase of fairy shrimp presence or absence surveys. If an absence finding is determined and accepted by the USFWS, then no further mitigation shall be required for fairy shrimp. (c) If fairy shrimp are found to be present within vernal pools or other areas of inundation to be impacted by the implementation of storm drainage facilities, FMFCD shall mitigate impacts on fairy shrimp habitat in accordance with the USFWS requirements of the Programmatic Biological Opinion. This shall include on-site or off-site creation and/or preservation of fairy shrimp habitat at ratios ranging from 3:1 to 5:1 depending on the habitat impacted and the choice of on-site or off-site mitigation. Or mitigation shall be the purchase of mitigation credit through an accredited mitigation bank. **Verification comments:**	*[see previous page]*	*[see previous page]*	

A - Incorporated into Project
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Utilities and Service Systems - *Biological Resources* *(continued)*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-14: When FMFCD proposes to construct drainage facilities in an area where elderberry bushes may occur: (a) During facility design and prior to initiation of construction activities, FMFCD shall conduct a project-specific survey for all potential Valley Elderberry Longhorn Beetle (VELB) habitats (elderberry shrubs), including a stem count and an assessment of historic or current VELB habitat. (b) FMFCD shall avoid and protect all potential identified VELB habitat where feasible. (c) Where avoidance is infeasible, develop and implement a VELB mitigation plan in accordance with the most current USFWS mitigation guidelines for unavoidable take of VELB habitat pursuant to either Section 7 or Section 10(a) of the Federal Endangered Species Act. The mitigation plan shall include, but might not be limited to, relocation of elderberry shrubs, planting of elderberry shrubs, and monitoring of relocated and planted elderberry shrubs. **Verification comments:**	During facility design and prior to initiation of construction activities	CDFW and USFWS						X

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)***:**

USS-15: Prior to ground disturbing activities during nesting season (March through July) for a project that supports bird nesting habitat, FMFCD shall conduct a survey of trees. If nests are found during the survey, a qualified biologist shall assess the nesting activity on the project site. If active nests are located, no construction activities shall be allowed within 250 feet of the nest until the young have fledged. If construction activities are planned during the no n-breeding period (August through February), a nest survey is not necessary. **Verification comments:**	Prior to ground disturbing activities during nesting season (March through July) for a project that supports bird nesting habitat	CDFW and USFWS						
USS-16: When FMFCD proposes to construct drainage facilities in an area that supports bird nesting habitat: (a) FMFCD shall conduct a pre-construction breeding-season survey (approximately February 1 through August 31) of proposed project sites in suitable habitat (levee and canal berms, open grasslands with suitable burrows) during the same calendar year that construction is planned to begin. If phased construction procedures are planned for the proposed project, the results of the above survey shall be valid only for the season when it is conducted. *(continued on next page)*	Prior to ground disturbing activities during nesting season (March through July) for a project that supports bird nesting habitat	CDFW and USFWS						X

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)***:**

USS-16 *(continued from previous page)* (b) During the construction stage, FMFCD shall avoid all burrowing owl nest sites potentially disturbed by project construction during the breeding season while the nest is occupied with adults and/or young. The occupied nest site shall be monitored by a qualified biologist to determine when the nest is no longer used. Avoidance shall include the establishment of a 160-foot diameter non-disturbance buffer zone around the nest site. Disturbance of any nest sites shall only occur outside of the breeding season and when the nests are unoccupied based on monitoring by a qualified biologist. The buffer zone shall be delineated by highly visible temporary construction fencing. Based on approval by CDFG, pre-construction and pre-breeding season exclusion measures may be implemented to preclude burrowing owl occupation of the project site prior to project-related disturbance. Burrowing owls can be passively excluded from potential nest sites in the construction area, either by closing the burrows or placing one-way doors in the burrows according to current CDFG protocol. Burrows shall be examined not more than 30 days before construction to ensure that no owls have recolonized the area of construction. *(continued on next page)*	*[see previous page]*	*[see previous page]*	

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems - *Biological Resources* *(continued)***:**

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-16 *(continued from previous two pages)* For each burrow destroyed, a new burrow shall be created (by installing artificial burrows at a ratio of 2:1 on protected lands nearby. **Verification comments:**	*[see Page 49]*	*[see Page 49]*						
USS-17: When FMFCD proposes to construct drainage facilities in the San Joaquin River corridor: (a) FMFCD shall not conduct instream activities in the San Joaquin River between October 15 and April 15. If this is not feasible, FMFCD shall consult with the National Marine Fisheries Service and CDFW on the appropriate measures to be implemented in order to protect listed salmonids in the San Joaquin River. (b) Riparian vegetation shading the main–channel that is removed or damaged shall be replaced at a ratio and quantity sufficient to maintain the existing shading of the channel. The location of replacement trees on or within *(continued on next page)*	During instream activities conducted between October 15 and April 15	National Marine Fisheries Service (NMFS), CDFW, and Central Valley Flood Protection Board (CVFPB)						X

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems / *Biological Resources* *(continued)***:**

USS-17 *(continued from previous page)* FMFCD berms, detention ponds or river channels shall be approved by FMFCD and the Central Valley Flood Protection Board. **Verification comments:**	*[see previous page]*	*[see previous page]*						

Utilities and Service Systems – *Recreation / Trails*:

USS-18: When FMFCD updates its District Service Plan: Prior to final design approval of all elements of the District Services Plan, FMFCD shall consult with Fresno County, City of Fresno, and City of Clovis to determine if any element would temporarily disrupt or permanently displace adopted existing or planned trails and associated recreational facilities as a result of the proposed District Services Plan. If the proposed project would not temporarily disrupt or permanently displace adopted existing or planned trails, no further mitigation is necessary. If the proposed project would have an effect on the trails and associated facilities, FMFCD shall implement the following: *(continued on next page)*	Prior to final design approval of all elements of the District Services Plan	DARM, PW, City of Clovis, and County of Fresno						X

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems – *Recreation / Trails* (*continued*):

USS-18 *(continued from previous page)* (a) If short-term disruption of adopted existing or planned trails and associated recreational facilities occur, FMFCD shall consult and coordinate with Fresno County, City of Fresno, and City of Clovis to temporarily re-route the trails and associated facilities. (b) If permanent displacement of the adopted existing or planned trails and associated recreational facilities occur, the appropriate design modifications to prevent permanent displacement shall be implemented in the final project design or FMFCD shall replace these facilities. **Verification comments:**	*[see previous page]*	*[see previous page]*						

Utilities and Service Systems – *Air Quality*:

USS-19: When District drainage facilities are constructed, FMFCD shall: (a) Minimize idling time of construction equipment vehicles to no more than ten minutes, or require that engines be shut off when not in use. *(continued on next page)*	During storm water drainage facility construction activities	Fresno Metropolitan Flood Control District and SJVAPCD						X

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MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems – *Air Quality* *(continued)*:

USS-19 *(continued from previous page)* (b) Construction shall be curtailed as much as possible when the Air Quality Index (AQI) is above 150. AQI forecasts can be found on the SJVAPCD web site. (c) Off-road trucks should be equipped with on-road engines if possible. (d) Construction equipment should have engines that meet the current off-road engine emission standard (as certified by CARB), or be re-powered with an engine that meets this standard. **Verification comments:**	*[see previous page]*	*[see previous page]*						

Utilities and Service Systems – *Adequacy of Storm Water Drainage Facilities*:

USS-20: Prior to exceeding capacity within the existing storm water drainage facilities, the City shall coordinate with FMFCD to evaluate the storm water drainage system and shall not approve additional development that would convey additional storm water to a facility that would experience an exceedance of capacity until the necessary additional capacity is provided. **Verification comments:**	Prior to exceeding capacity within the existing storm water drainage facilities	FMFCD, PW, and DARM						X

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F - Not Applicable

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F

Utilities and Service Systems – *Adequacy of Water Supply Capacity*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-21: Prior to exceeding existing water supply capacity, the City shall evaluate the water supply system and shall not approve additional development that demand additional water until additional capacity is provided. By approximately the year 2025, the City shall construct an approximately 25,000 AF/year tertiary recycled water expansion to the Fresno-Clovis Regional Wastewater Reclamation Facility in accordance with the 2013 Recycled Water Master Plan and the 2014 City of Fresno Metropolitan Water Resources Management Plan update. Implementation of Mitigation Measure USS-5 is also required prior to approximately the year 2025. **Verification comments:**	Prior to exceeding existing water supply capacity	DPU and DARM						X

Utilities and Service Systems – *Adequacy of Landfill Capacity*:

MITIGATION MEASURE	WHEN IMPLEMENTED	COMPLIANCE VERIFIED BY	A	B	C	D	E	F
USS-22: Prior to exceeding landfill capacity, the City shall evaluate additional landfill locations and shall not approve additional development that could contribute solid waste to a landfill that is at capacity until additional capacity is provided. **Verification comments:**	Prior to exceeding landfill capacity	DPU and DARM						X

A - Incorporated into Project
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D - Responsible Agency Contacted
E - Part of City-Wide Program
F - Not Applicable

CITY OF FRESNO
MITIGATED NEGATIVE DECLARATION
PROJECT SPECIFIC MITIGATION MONITORING CHECKLIST
ENVIRONMENTAL ASSESSMENT NO. P18-02233

Project/EA No. **P18-02233** Date: March 2019

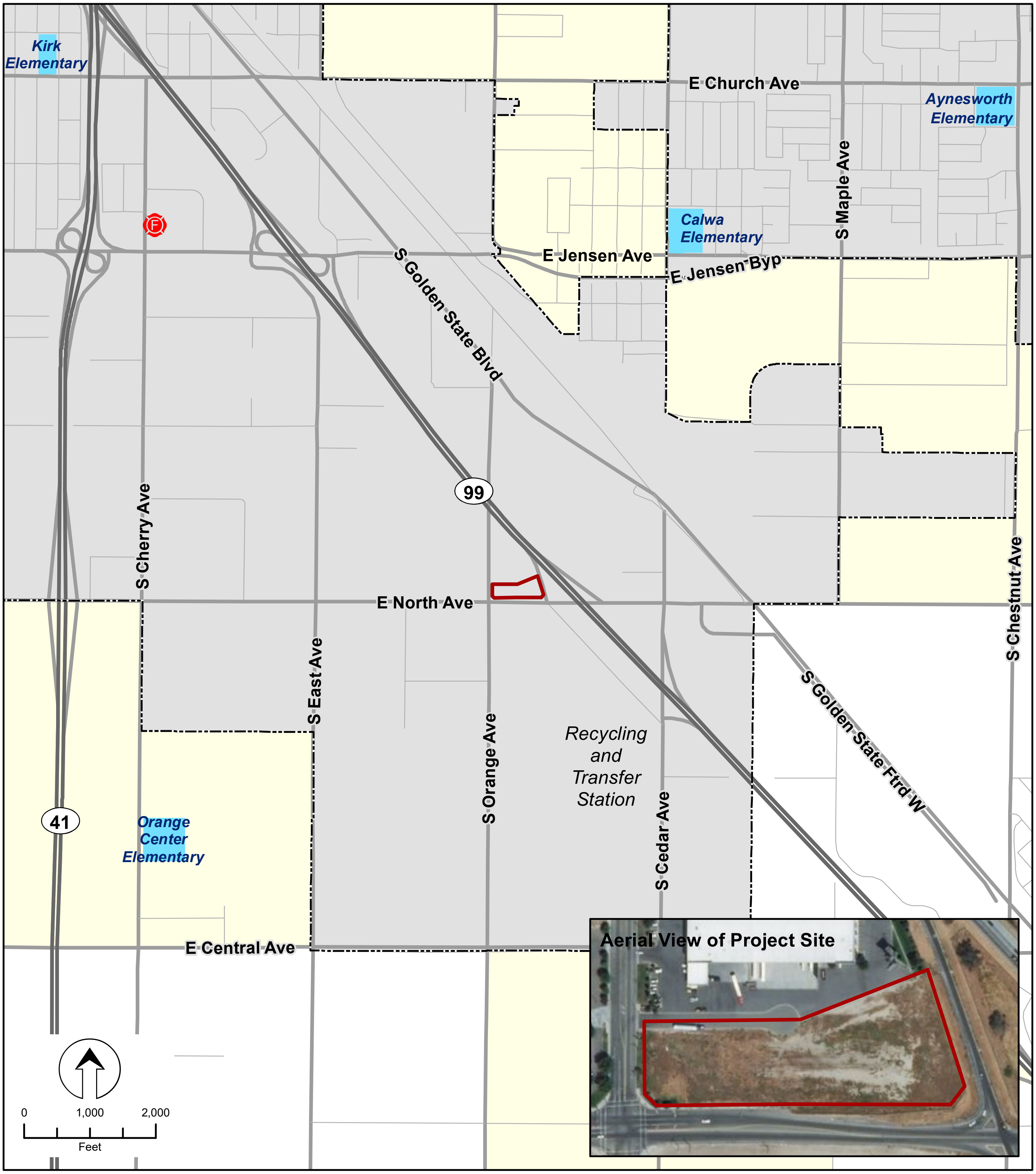
	Mitigation Measure	Implemented By	When Implemented	Verified By
	BIO-1. The project proponent shall implement the following measure to avoid or minimize impacts on western burrowing owl: • No less than 14 days before initiating ground disturbance activities, a qualified biologist shall complete an initial take avoidance survey using the recommended methods described in the Detection Surveys section of the March 7, 2012, CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012). Implementation of avoidance and minimization measures (as presented in the March 7, 2012, CDFW Staff Report on Burrowing Owl Mitigation) would be triggered if the initial take avoidance survey results in positive owl presence in the Plan Area where project activities shall occur. If needed, the development of avoidance and minimization approaches shall be developed in coordination with CDFW.	DARM	Prior to issuance of building permits	

	BIO-2. The project proponent shall implement the following measures to avoid or minimize impacts on Swainson's hawk: • No more than 30 days before the commencement of construction, a qualified biologist shall perform preconstruction surveys for nesting Swainson's hawk and other raptors during the nesting season (February 1 through August 31). • Appropriate buffers shall be established and maintained around active nest sites during construction activities to avoid nest failure as a result of project activities. The appropriate size and shape of the buffers shall be determined by a qualified biologist, in coordination with CDFW, and may vary depending on the nest location, nest stage, and construction activity. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. Monitoring shall be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity shall commence within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use. • Before the commencement of construction, the project proponent shall provide compensatory mitigation for the permanent loss of Swainson's hawk foraging habitat. Mitigation shall be at the CDFW specified ratios, which are based on distance to nests. The Plan Area's distance to the closest nest falls within the range of "within 5 miles of an active nest tree but greater than 1 mile from the nest tree." As such, the Project shall be responsible for 0.75 acres of each acre of urban development authorized (0-75:1 ratio). The project proponent shall either provide lands protected through fee title acquisition or conservation easement (acceptable to the CDFW) on agricultural lands or other suitable habitats which provide foraging habitat for Swainson's hawk.	DARM	Prior to issuance of building permits	

	BIO-3. The project proponent shall implement the following measure to avoid or minimize impacts on other protected bird species that may occur on the site: • Preconstruction surveys for active nests of special-status birds shall be conducted by a qualified biologist in all areas of suitable habitat within 500 feet of project disturbance. Surveys shall be conducted within 14 days before commencement of any construction activities that occur during the nesting season (February 15 to August 31) in a given area. • If any active nests, or behaviors indicating that active nests are present, are observed, appropriate buffers around the nest sites shall be determined by a qualified biologist to avoid nest failure resulting from project activities. The size of the buffer shall depend on the species, nest location, nest stage, and specific construction activities to be performed while the nest is active. The buffers may be adjusted if a qualified biologist determines it would not be likely to adversely affect the nest. If buffers are adjusted, monitoring will be conducted to confirm that project activity is not resulting in detectable adverse effects on nesting birds or their young. No project activity shall commence within the buffer areas until a qualified biologist has determined that the young have fledged or the nest site is otherwise no longer in use.	DARM	Prior to issuance of building permits	

	BIO-4. The project proponent shall implement the following measures to avoid or minimize impacts on special-status bats: • If removal of suitable roosting areas (i.e. trees, shrubs, etc.) must occur during the bat pupping season (April 1 through July 31), surveys for active maternity roosts shall be conducted by a qualified biologist. The surveys shall be conducted from dusk until dark. • If a special-status bat maternity roost is located, appropriate buffers around the roost sites shall be determined by a qualified biologist and implemented to avoid destruction or abandonment of the roost resulting from habitat removal or other project activities. The size of the buffer shall depend on the species, roost location, and specific construction activities to be performed in the vicinity. No project activity shall commence within the buffer areas until the end of the pupping season (August 1) or until a qualified biologist conforms the maternity roost is no longer active.	DARM	Prior to issuance of building permits	
	CIRC-1. Prior to issuance of a building permit, the project proponent shall pay the equitable fair share as presented in Table IX of the Traffic Impact Analysis (JLB Traffic Engineering, Inc., January 12, 2018). The project applicant shall also pay other applicable traffic impact fees (including, but not limited to, the Traffic Signal Mitigation Impact [TSMI] Fee, Fresno Major Street Impact [FMSI] Fee, and the Regional Transportation Mitigation Fee [RTMF]).	DARM	Prior to issuance of building permits	

Attachments



Legend
- Project Location
- Fresno City Limits
- Fresno Sphere of Influence
- School
- Fire Station

Sources: Fresno County GIS; City of Fresno GIS; ArcGIS Online World Imagery Map Service. Map date: March 14, 2019.

FRESNO P18-02233

Vicinity Map

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

Appendix A

Air Quality Technical Memorandum

Stantec

Memo

To:	Mr. Neil Angelillo True North Properties 1155 W. Shaw Avenue # 104 Fresno, CA 93711	From:	Elena Nuño, Senior Air Quality Scientist 7502 N Colonial, Suite 101 Fresno, CA 93711
File:	1857	Date:	December 20, 2018

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

At the request of True North Properties, Stantec Consulting services prepared this Air Quality Technical Memorandum to analyze criteria air pollutants and toxic air contaminants (TACs) associated with the construction and operation of the project located at 2999 South Orange Ave (referred to hereafter as the proposed project). This analysis is being performed to support the proposed project's California Environmental Quality Act (CEQA) documentation and per the request of the City of Fresno Planning Department.

This memorandum discusses the construction and operational emissions sources, methodology for calculating emissions, and the methodology for conducting the prioritization screening for health risks.

PROJECT UNDERSTANDING

The proposed project is located at 2999 South Orange Avenue, in the City of Fresno, California, approximately 0.4 miles from the State Route 99 (SR 99) southbound off-ramp (North Avenue) and 0.90 miles from the SR 99 northbound offramp (Cedar Avenue) (see Figure 1). The proposed project involves the construction and operation of a 13,289 square foot commercial development on 3.72 acres in the City of Fresno, California. The project site is shown in Figure 2. The proposed project is broken up into the following components:

- Convenience market with gas station – 3,062 square feet of building and 12 pumps
- Panda Express – 2,227 square feet
- Retail Building – 5,000 square feet (note that the site plan shows a potential drive through)
- Fast food restaurant with drive through – 3,000 square feet

Figure 1: Project Location

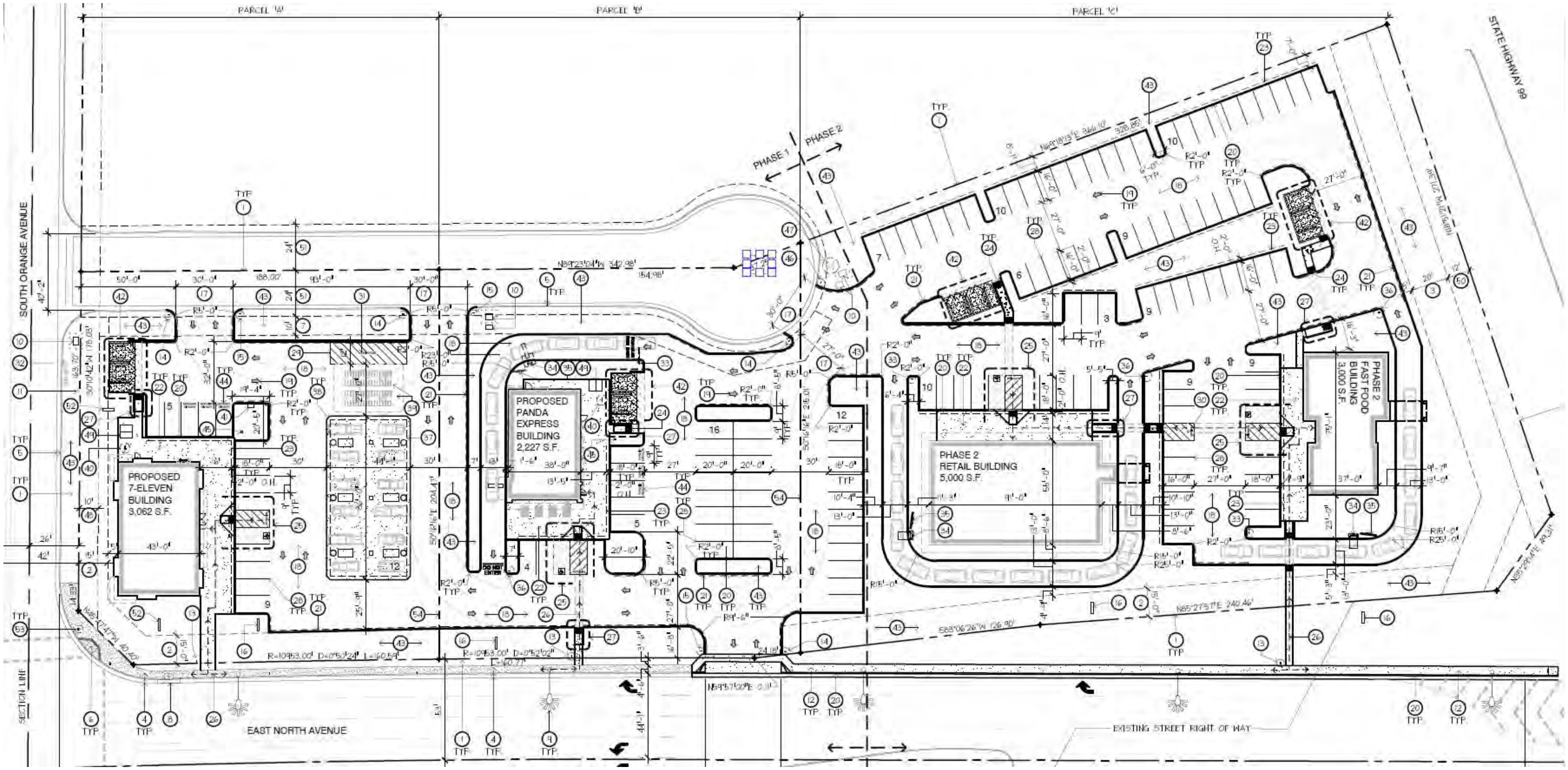


Figure 2: Site Plan

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

APPLICABLE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT REGULATIONS

The proposed project would be subject to the following the San Joaquin Valley Air Pollution Control District (District) regulations:

Rule 2010 – Permits Required. The purpose of this rule is to require any person constructing, altering, replacing or operating any source operation which emits, may emit, or may reduce emissions to obtain an Authority to Construct and a Permit to Operate. This rule also explains the posting requirements for a Permit to Operate and the illegality of a person willfully altering, defacing, forging, counterfeiting or falsifying any Permit to Operate.

Rule 2201 – New and Modified Stationary Source Review Rule. The purpose of this rule is to provide for the following: (1) The review of new and modified Stationary Sources of air pollution and to provide mechanisms including emission trade-offs by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards; and (2) No net increase in emissions above specified thresholds from new and modified Stationary Sources of all nonattainment pollutants and their precursors.

Rule 4102 – Nuisance. The purpose of this rule is to protect the health and safety of the public and applies to any source operation that emits or may emit air contaminants or other materials.

Rule 4601 – Architectural Coatings. The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.

Rule 4621 – Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants. The purpose of this rule is to limit VOC emissions from stationary storage containers, delivery vessels, and bulk plants and to provide the administrative requirements for determining compliance with this rule.

Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations. The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641.

Regulation VIII – Fugitive PM_{10} Prohibitions. Rule 8011-8081 are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and trackout, etc. All development projects that involve soil disturbance are subject to at least one provision of the Regulation VIII series of rules.

Rule 9510 – Indirect Source Review. This rule reduces the impact of NO_x and PM_{10} emissions from growth on the Air Basin. The rule places application and emission reduction requirements on development projects meeting applicability criteria to reduce emissions through onsite mitigation, offsite District -administered projects, or a combination of the two. This project must comply with Rule 9510 because it would develop more than 2,000 square feet of commercial space.

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

METHODOLOGY

The analysis followed the guidance presented by the District in its Guide for Assessing and Mitigating Air Quality Impacts (March 2015). The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to estimate the criteria air pollutants from construction and operation of the project. The District's Prioritization Calculator was used to screen health risks.

CONSTRUCTION

The proposed project would be constructed in three phases with the first phase beginning in 2019 and the final phase ending completion in 2024. The following construction schedule was used to estimate construction emissions, see Table 1. Construction occurring any time after January 2019 would result in decreased emissions since emission factors for construction equipment decrease as the analysis year is pushed out due to increasing regulation, such as the California Air Resources Board (CARB) In-Use Off-Road Diesel-Fueled Fleets regulation requiring the use of cleaner construction equipment fleets. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines.

Table 1: Construction Schedule

Phase	Construction Phase	Anticipated Phase Start Date	Anticipated Phase End Date	Total Number of Days
1 Convenience Market with Gasoline Station and Panda Express	Site Preparation	2/5/2019	2/5/2019	2
	Site Grading	2/11/2019	2/11/2019	4
	Building Construction	2/12/2019	11/18/2019	200
	Paving	11/19/2019	12/2/2019	10
	Architectural Coating	12/3/2019	12/19/2019	10
2 5,000 square foot building	Site Preparation	1/4/2021	1/5/2021	2
	Site Grading	1/6/2021	1/11/2021	4
	Building Construction	1/12/2021	10/18/2021	200
	Paving	10/19/2021	11/1/2021	10
	Architectural Coating	11/2/2021	11/15/2021	10
3 3,000 square foot building	Site Preparation	1/8/2024	1/9/2024	2
	Site Grading	1/10/2024	1/15/2024	4
	Building Construction	1/16/2024	10/21/2024	200
	Paving	10/22/2024	11/4/2024	10
	Architectural Coating	11/5/2025	11/18/2024	10
Source: True North Properties – start of construction schedule; CalEEMod defaults for duration				

OPERATIONS

Non-Stationary Sources

The proposed project would become operational in phases beginning in the year 2020 and would be completely built out in the year 2025. Trip generation information for the proposed project was derived from the Traffic Impact Study prepared by JLB Traffic Engineering, Inc. and the Institute of Traffic Engineers (ITE) Trip Generation Manual 10th Edition. Trip generation for the proposed project is shown in Table 2.

Table 2: Trip Generation Rate

Land Use Type (ITE Land Use Type)	Size	Trip Generation		
		Weekday	Saturday	Sunday
Convenience Market with gasoline Station (945) [1]	12 pumps	205.36	204.47	166.88
Panda Express (934) [2]	2.27 ksf	470.95	616.12	472.58
Retail Building (934) [2, 3]	3.002 ksf	470.95	616.12	472.58
Retail Building (937)2,	1.998	820.38	673.64	421.82
Fast food Restaurant with Drive Through (934) [2]	3 ksf	470.95	616.12	472.58

Notes:

1. Daily rate from Traffic Impact Study prepared by JLB Traffic Engineering, Inc.; Saturday and Sunday from CalEEMod defaults (no ITE 10th edition rates for Saturday and Sunday)

2. Daily rates from Daily rate from Traffic Impact Study prepared by JLB Traffic Engineering, Inc.; Saturday and Sunday rates from ITE 10th Edition

3. Although the site plan shows the 5,000 square foot building as future retail, there is a drive through shown on the site plan, therefore the more conservative assumption of fast food restaurant with drive through was used for 3,002 square feet and the remaining 1,098 allocated to the ITE Land Use 937 for drive-through coffee shop/donut shop

The default fleet mix from CalEEMod overstates the number of trucks making deliveries to commercial/retail land uses. Stantec prepared an analysis of truck trip generation for similar land uses to identify a more accurate fleet mix for use in the project analysis. The tenants will include service providers such as fast-food restaurants and a convenience market. Separate fleet mixes for each land use were developed (see attached fleet mix revisions). In addition, a combined heavy-duty diesel truck estimate was prepared for the entire project site to reflect solid waste collection services. It was assumed that solid waste and recyclables would be collected 4 times per week. Based on the project's location near the commercial service provider of Mid-Valley Disposal and nearby transfer stations, the trip length was assumed to be 20 miles.

The default trip length in CalEEMod for customer trips (7.3 miles) was revised to reflect the location of the project near SR 99 and its proximity to major employment centers within an approximately 3-mile radius. This trip length is consistent with the findings in the addendum to the Traffic Impact Study. The primary, pass-by, and diverted trips from CalEEMod were revised to reflect the trip percentage estimates in the traffic impact study of 64 percent primary, 11 percent diverted, and 25 percent pass-by.

Stationary Sources

The proposed project includes a gasoline dispensing facility which would be subject to District permitting requirements. The gasoline dispensing facility would need to apply for an Authority to Construct (ATC), Permit to Operate (PTO) and comply with Rule 4621. The facility will dispense up to 1.4 million gallons of gasoline annually. Notably, the facility will not include diesel fuel, therefore the only heavy-duty diesel fueled vehicles accessing the facility would be the tanker trucks unloading into the underground storage tanks.

The volatile organic compound (VOC) or reactive organic gases (ROG) estimate was derived from the emission factors in the District's Guidance for Air Dispersion Modeling (January 2007) based on the California Air Resources Board's 1997 report Gasoline Service Station Industrial Wide Risk Assessment Guidelines.

RESULTS

Construction

The proposed project's construction emissions in tons per year are shown in Table 3. The project's maximum daily emissions in pounds (lbs.) per day are shown in Table 4. As shown in Table 3, the project would not exceed the District's thresholds of significance for criteria air pollutants. Table 4 shows that the project would not exceed the District's screening threshold of 100 lbs. per day for requiring an ambient air quality analysis.

Based on the results, construction of the proposed project would not result in any significant impacts to air quality from a regional or localized perspective. Additionally, compliance with District Rule 9510 Indirect Source Review would further reduce NO_x and PM_{10} emissions through onsite measures or payment of fees to reduce emissions offsite.

Table 3: Summary of Construction-Generated Emissions of Criteria Air Pollutants – Unmitigated (Tons/Year)

Phase	Year	Emissions (Tons/Year)					
		ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
1	2019	0.31	1.89	1.56	0.002	0.14	0.11
2	2021	0.25	1.55	1.55	0.002	0.10	0.08
3	2024	0.19	1.24	1.24	0.002	0.07	0.06
Significance Thresholds		10	10	100	27	15	15
Any Year Exceed Significance Thresholds?		No	No	No	No	No	No
Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2							

Table 4: Summary of Construction-Generated Emissions of Criteria Air Pollutants – Unmitigated Maximum (lbs./day)

Phase	Year	Emissions (lbs./day)					
		ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
1	2019	10.69	19.51	14.80	0.028	3.56	2.16
2	2021	9.01	17.44	13.55	0.026	3.44	2.05
3	2024	6.33	11.86	13.05	0.026	3.16	1.79
Ambient Air Quality Analysis Screening Threshold		100	100	100	100	100	100
Any Year Exceed Screening Thresholds?		No	No	No	No	No	No
Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2							

Operational

The proposed project's long-term operational emissions are shown in Table 5 (annual) and Table 6 (daily). As shown in Table 5, the proposed project would not exceed the District's thresholds of significance. As shown in Table 6, the proposed project would not exceed 100 lbs. per day, thus an ambient air quality analysis is not required pursuant to District guidance.

Based on the results, operation of the proposed project would not result in any significant impacts to air quality from a regional or localized perspective. Additionally, compliance with District Rule 9510 Indirect Source Review would further reduce NO_x and PM_{10} emissions through onsite measures or payment of fees to reduce emissions offsite.

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

Table 5: Summary of Operational Emissions of Criteria Air Pollutants – Unmitigated (Tons/Year)

Year	Component	Emissions (Tons/Year)					
		ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2020	Convenience Market w/gasoline Station	0.65	0.73	4.61	0.01	0.86	0.23
	Panda Express	0.30	0.35	2.15	0.00	0.40	0.11
	Refuse Collection	< 0.00	0.06	0.01	< 0.00	0.00	0.00
	Subtotal	0.95	1.14	6.77	0.01	1.26	0.34
2022	5,000 sf Building	0.70	0.79	5.03	0.01	1.21	0.33
2024	3,000 sf building	0.29	0.30	2.07	0.01	0.66	0.18
Total		1.94	2.23	13.87	0.03	3.13	0.85
Significance Thresholds		10	10	100	27	15	15
Any Year Exceed Significance Thresholds?		No	No	No	No	No	No
Does Project Buildout Exceed the Significance Thresholds?		No	No	No	No	No	No

Notes:
Project buildout totaled the emissions from early years and did not remodel the emissions estimate, the total project buildout would be less than the emissions shown due to cleaner mobile source vehicles in later years.
Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2

Table 6: Summary of Operational Emissions of Criteria Air Pollutants – Unmitigated (lbs./day)

Year	Component	Emissions (lbs./day)					
		ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2020	Convenience Market w/gasoline Station	0.65	0.73	4.61	0.01	0.86	0.23
	Panda Express	0.30	0.35	2.15	0.00	0.40	0.11
	Refuse Collection	< 0.00	0.06	0.01	< 0.00	0.00	0.00
	Subtotal	0.95	1.14	6.77	0.01	1.26	0.34
2022	5,000 sf Building	4.05	5.39	34.68	0.08	8.09	2.21
2024	3,000 sf building	0.29	0.30	2.07	0.01	0.66	0.18
Total		11.00	14.85	93.58	0.20	20.62	5.63
Ambient Air Quality Analysis Screening Threshold		100	100	100	100	100	100
Any Year Exceed Screening Thresholds?		No	No	No	No	No	No
Does Project Buildout Exceed Screening Thresholds?		No	No	No	No	No	No

Notes:
Project buildout totaled the emissions from early years and did not remodel the emissions estimate, the total project buildout would be less than the emissions shown due to cleaner mobile source vehicles in later years.
Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2

Stationary Sources

Gasoline Dispensing Facility

1. Loading (Tank) = VOC = 0.84 lbs./1,000 gallons x 1.4 million gallons = 1,176 lbs.
2. Breathing (Tank) = VOC = 0.74 lbs./1,000 gallons x 1.4 million gallons = 1,036 lbs.
3. Refueling = VOC = 0.74 lbs./1,000 gallons x 1.4 million gallons = 1,036 lbs.
4. Spillage = VOC = 0.42 lbs./1,000 gallons x 1.4 million gallons = 588 lbs.

Total = 3,836 lbs. or 1.918 tons of VOC (less than the District thresholds of significance).

HEALTH RISK PRIORITIZATION

Those who are sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. For purposes of CEQA, the SJVAPCD considers a sensitive receptor a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The nearest sensitive receptor the project site are residences located approximately one-mile south at Central and North Avenues. The nearest worksite receptor is located approximately 100 feet west from the project site boundary on Orange Avenue.

The District recommended that a screening analysis be performed to determine if a refined Health Risk Assessment (HRA) should be performed. The District's recommended method for screening risks is by using its prioritization calculator based on the California Air Pollution Control Officers Facility Prioritization Guidelines (August 2016). The prioritization calculator will provide a score based on the emission potency method. The prioritization score is an indicator of a facility's potential risk. Scores of 10 or greater indicate that a refined HRA should be prepared because there is the potential for a significant health risk. Scores less than 10 indicate that the project's TAC emissions are not a high risk.

The various TACs that would be emitted from the project include: Benzene, Toluene, and Xylene from the gasoline dispensing facility and diesel engine exhaust from delivery vehicles to the project site.

The maximum prioritization score total is 2.51 to the nearest worksite receptor. This is less than the District recommended screening threshold of 10 for conducting a refined HRA. The maximum prioritization score for the nearest residential receptor is 0.00251.

Based on the score of 2.51, the proposed project would not result in a significant health risk and does not require a refined HRA.

LOCALIZED AIR QUALITY IMPACTS

Localized impacts to air quality are a possibility when criteria air pollutant emissions exceed 100 lbs. per day. Localized fugitive dust impacts are also a possibility where fugitive dust controls are not implemented. The proposed project would not exceed 100 lbs. per day during construction or operation, therefore potential localized air quality impacts would be less than significant. The proposed project would be required to comply with the District's Regulation VIII Fugitive Dust Prohibitions, which requires the preparation and implementation of a dust control plan or dust control notification. Under either scenario, construction of the project would be required to implement best management practices to control fugitive dust. Therefore, potential fugitive dust impacts would be less than significant.

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

SUMMARY

Based on the analysis, the proposed project would not result in a significant impact to air quality based on the following results:

- The proposed project would not result in any exceedances of the District's significance thresholds.
- The proposed project does not exceed any screening thresholds for localized air quality impacts.
- The proposed project's prioritization score of 2.51 is less than the District's screening threshold of 10. This score indicates that the project would not result in a significant health risk to nearby offsite workers and the risk to the nearest residential receptors is reduced even further.
- The proposed project's stationary source emissions would not exceed the District's thresholds of significance. The proposed project would be required to obtain an ATC prior to constructing the gasoline dispensing facility and a PTO would be issued upon the District's confirmation that the facility was constructed in accordance with the conditions in the ATC.

Stantec Consulting Services Inc.

Elena Nuno
Senior Air Quality Scientist

Phone: 559.355.0580
elena.nuno@stantec.com

Attachments: CalEEMod Modeling Outputs
Fleet mix revisions
Prioritization Calculator

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

REFERENCES

California Air Pollution Control Officers. 2016. CAPCOA Air Toxic "Hot Spots" Program Facility Prioritization Guidelines. August. Website: http://www.capcoa.org/wp-content/uploads/2016/08/CAPCOA%20Prioritization%20Guidelines%20-%20August%202016%20FINAL.pdf. Accessed December 17, 2018.

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JLB Traffic Engineering, Inc. 2018. Draft Traffic Impact Analysis Commercial Development. January.

JLB Traffic Engineering, Inc. 2018. Trip Generation Analysis for the Commercial Development located at the Northeast Corner of North Avenue and Orange Avenue in the City of Fresno. December

San Joaquin Valley Air Pollution Control District. 2015. Guide for Assessing and Mitigating Air Quality Impacts. March. Website: http://www.valleyair.org/busind/pto/tox_resources/Modeling%20Guidance%20W_O%20Pic.pdf. Accessed December 17, 2018.

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CALEEMOD

Construction Results

99 and North Phase 1 - Construction Only

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	5.29	1000sqft	0.12	5,289.00	0
Parking Lot	47.00	Space	0.42	18,800.00	0
Other Asphalt Surfaces	1.09	Acre	1.09	47,480.40	0
Other Non-Asphalt Surfaces	0.15	Acre	0.15	6,534.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	PhaseEndDate	1/13/2020	12/16/2019
tblConstructionPhase	PhaseEndDate	12/16/2019	11/18/2019
tblConstructionPhase	PhaseEndDate	3/11/2019	2/11/2019
tblConstructionPhase	PhaseEndDate	12/30/2019	12/2/2019
tblConstructionPhase	PhaseEndDate	3/5/2019	2/5/2019
tblConstructionPhase	PhaseStartDate	12/31/2019	12/3/2019
tblConstructionPhase	PhaseStartDate	3/12/2019	2/12/2019
tblConstructionPhase	PhaseStartDate	3/6/2019	2/6/2019
tblConstructionPhase	PhaseStartDate	12/17/2019	11/19/2019
tblConstructionPhase	PhaseStartDate	3/2/2019	2/4/2019

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3132	1.8907	1.5569	2.97E-03	0.0508	0.0987	0.1494	0.0176	0.0951	0.1126						
Maximum	**0.3132**	**1.8907**	**1.5569**	**2.9700e-003**	**0.0508**	**0.0987**	**0.1494**	**0.0176**	**0.0951**	**0.1126**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3132	1.8907	1.5569	2.9700e-003	0.0422	0.0987	0.1408	0.0131	0.0951	0.1082						
Maximum	**0.3132**	**1.8907**	**1.5569**	**2.9700e-003**	**0.0422**	**0.0987**	**0.1408**	**0.0131**	**0.0951**	**0.1082**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**16.94**	**0.00**	**5.75**	**25.13**	**0.00**	**3.91**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-4-2019	5-3-2019	0.6407	0.6407
2	5-4-2019	8-3-2019	0.6672	0.6672
3	8-4-2019	9-30-2019	0.4206	0.4206
		Highest	0.6672	0.6672

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/4/2019	2/5/2019	5	2	
2	Grading	Grading	2/6/2019	2/11/2019	5	4	
3	Building Construction	Building Construction	2/12/2019	11/18/2019	5	200	
4	Paving	Paving	11/19/2019	12/2/2019	5	10	
5	Architectural Coating	Architectural Coating	12/3/2019	12/16/2019	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.66

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,934; Non-Residential Outdoor: 2,645; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38

Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003						
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004						

Total	1.7100e-003	0.0195	7.8900e-003	2.0000e-005	5.8000e-003	8.8000e-004	6.6800e-003	2.9500e-003	8.1000e-004	3.7600e-003						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						
Total	**4.0000e-005**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6100e-003	0.0000	2.6100e-003	1.3300e-003	0.0000	1.3300e-003						
Off-Road	1.7100e-003	0.0195	7.8900e-003	2.0000e-005		8.8000e-004	8.8000e-004		8.1000e-004	8.1000e-004						
Total	**1.7100e-003**	**0.0195**	**7.8900e-003**	**2.0000e-005**	**2.6100e-003**	**8.8000e-004**	**3.4900e-003**	**1.3300e-003**	**8.1000e-004**	**2.1400e-003**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	4.0000e-005	2.0000e-005	2.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						
Total	**4.0000e-005**	**2.0000e-005**	**2.5000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**						

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003						
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003						
Total	**2.8400e-003**	**0.0321**	**0.0132**	**3.0000e-005**	**9.8300e-003**	**1.4700e-003**	**0.0113**	**5.0500e-003**	**1.3600e-003**	**6.4100e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005						
Total	**8.0000e-005**	**5.0000e-005**	**5.0000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.4200e-003	0.0000	4.4200e-003	2.2700e-003	0.0000	2.2700e-003						
Off-Road	2.8400e-003	0.0321	0.0132	3.0000e-005		1.4700e-003	1.4700e-003		1.3600e-003	1.3600e-003						
Total	**2.8400e-003**	**0.0321**	**0.0132**	**3.0000e-005**	**4.4200e-003**	**1.4700e-003**	**5.8900e-003**	**2.2700e-003**	**1.3600e-003**	**3.6300e-003**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005						
Total	**8.0000e-005**	**5.0000e-005**	**5.0000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	0.2272	1.5980	1.3487	2.2000e-003		0.0916	0.0916		0.0885	0.0885						
Total	**0.2272**	**1.5980**	**1.3487**	**2.2000e-003**		**0.0916**	**0.0916**		**0.0885**	**0.0885**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	5.9800e-003	0.1758	0.0300	3.7000e-004	8.6200e-003	1.2700e-003	9.8900e-003	2.4900e-003	1.2200e-003	3.7100e-003						
Worker	0.0151	9.9500e-003	0.0997	2.5000e-004	0.0256	1.7000e-004	0.0258	6.8000e-003	1.6000e-004	6.9600e-003						
Total	**0.0211**	**0.1857**	**0.1297**	**6.2000e-004**	**0.0342**	**1.4400e-003**	**0.0356**	**9.2900e-003**	**1.3800e-003**	**0.0107**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2272	1.5980	1.3487	2.2000e-003		0.0916	0.0916		0.0885	0.0885						
Total	**0.2272**	**1.5980**	**1.3487**	**2.2000e-003**		**0.0916**	**0.0916**		**0.0885**	**0.0885**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	5.9800e-003	0.1758	0.0300	3.7000e-004	8.6200e-003	1.2700e-003	9.8900e-003	2.4900e-003	1.2200e-003	3.7100e-003						
Worker	0.0151	9.9500e-003	0.0997	2.5000e-004	0.0256	1.7000e-004	0.0258	6.8000e-003	1.6000e-004	6.9600e-003						
Total	**0.0211**	**0.1857**	**0.1297**	**6.2000e-004**	**0.0342**	**1.4400e-003**	**0.0356**	**9.2900e-003**	**1.3800e-003**	**0.0107**						

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003						
Paving	1.9800e-003					0.0000	0.0000		0.0000	0.0000						
Total	**6.5000e-003**	**0.0459**	**0.0445**	**7.0000e-005**		**2.6100e-003**	**2.6100e-003**		**2.4100e-003**	**2.4100e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.1000e-004	2.0000e-004	2.0300e-003	1.0000e-005	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004						
Total	**3.1000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	4.5200e-003	0.0459	0.0445	7.0000e-005		2.6100e-003	2.6100e-003		2.4100e-003	2.4100e-003						
Paving	1.9800e-003					0.0000	0.0000		0.0000	0.0000						
Total	**6.5000e-003**	**0.0459**	**0.0445**	**7.0000e-005**		**2.6100e-003**	**2.6100e-003**		**2.4100e-003**	**2.4100e-003**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.1000e-004	2.0000e-004	2.0300e-003	1.0000e-005	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004						
Total	**3.1000e-004**	**2.0000e-004**	**2.0300e-003**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**						

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0520					0.0000	0.0000		0.0000	0.0000						
Off-Road	1.3300e-003	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004						
Total	**0.0533**	**9.1800e-003**	**9.2100e-003**	**1.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.4000e-004	9.0000e-005	9.3000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005						
Total	**1.4000e-004**	**9.0000e-005**	**9.3000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Archit. Coating	0.0520					0.0000	0.0000		0.0000	0.0000						
Off-Road	1.3300e-003	9.1800e-003	9.2100e-003	1.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004						
Total	**0.0533**	**9.1800e-003**	**9.2100e-003**	**1.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	1.4000e-004	9.0000e-005	9.3000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	7.0000e-005						
Total	**1.4000e-004**	**9.0000e-005**	**9.3000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**7.0000e-005**						

99 and North Phase 1 - Construction Only

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	5.29	1000sqft	0.12	5,289.00	0
Parking Lot	47.00	Space	0.42	18,800.00	0
Other Asphalt Surfaces	1.09	Acre	1.09	47,480.40	0
Other Non-Asphalt Surfaces	0.15	Acre	0.15	6,534.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value

tblConstructionPhase	PhaseEndDate	1/13/2020	12/16/2019
tblConstructionPhase	PhaseEndDate	12/16/2019	11/18/2019
tblConstructionPhase	PhaseEndDate	3/11/2019	2/11/2019
tblConstructionPhase	PhaseEndDate	12/30/2019	12/2/2019
tblConstructionPhase	PhaseEndDate	3/5/2019	2/5/2019
tblConstructionPhase	PhaseStartDate	12/31/2019	12/3/2019
tblConstructionPhase	PhaseStartDate	3/12/2019	2/12/2019
tblConstructionPhase	PhaseStartDate	3/6/2019	2/6/2019
tblConstructionPhase	PhaseStartDate	12/17/2019	11/19/2019
tblConstructionPhase	PhaseStartDate	3/2/2019	2/4/2019

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	10.6890	19.5093	14.8007	0.0281	5.8653	0.9304	6.7481	2.9711	0.8984	3.7833						
Maximum	**10.6890**	**19.5093**	**14.8007**	**0.0281**	**5.8653**	**0.9304**	**6.7481**	**2.9711**	**0.8984**	**3.7833**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	10.6890	19.5093	14.8007	0.0281	2.6755	0.9304	3.5583	1.3466	0.8984	2.1588						
Maximum	**10.6890**	**19.5093**	**14.8007**	**0.0281**	**2.6755**	**0.9304**	**3.5583**	**1.3466**	**0.8984**	**2.1588**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.38**	**0.00**	**47.27**	**54.68**	**0.00**	**42.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	2/4/2019	2/5/2019	5	2	
2	Grading	Grading	2/6/2019	2/11/2019	5	4	
3	Building Construction	Building Construction	2/12/2019	11/18/2019	5	200	
4	Paving	Paving	11/19/2019	12/2/2019	5	10	
5	Architectural Coating	Architectural Coating	12/3/2019	12/16/2019	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.66

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,934; Non-Residential Outdoor: 2,645; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41

Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	32.00	13.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	6.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537						
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118						
Total	**1.7123**	**19.4821**	**7.8893**	**0.0172**	**5.7996**	**0.8824**	**6.6819**	**2.9537**	**0.8118**	**3.7655**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0399	0.0273	0.2463	6.1000e-004	0.0657	4.2000e-004	0.0661	0.0174	3.9000e-004	0.0178						
Total	**0.0399**	**0.0273**	**0.2463**	**6.1000e-004**	**0.0657**	**4.2000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292						
Off-Road	1.7123	19.4821	7.8893	0.0172		0.8824	0.8824		0.8118	0.8118						
Total	**1.7123**	**19.4821**	**7.8893**	**0.0172**	**2.6098**	**0.8824**	**3.4922**	**1.3292**	**0.8118**	**2.1409**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0399	0.0273	0.2463	6.1000e-004	0.0657	4.2000e-004	0.0661	0.0174	3.9000e-004	0.0178						
Total	**0.0399**	**0.0273**	**0.2463**	**6.1000e-004**	**0.0657**	**4.2000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**						

3.3 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256						
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775						
Total	**1.4197**	**16.0357**	**6.6065**	**0.0141**	**4.9143**	**0.7365**	**5.6507**	**2.5256**	**0.6775**	**3.2032**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0399	0.0273	0.2463	6.1000e-004	0.0657	4.2000e-004	0.0661	0.0174	3.9000e-004	0.0178						
Total	**0.0399**	**0.0273**	**0.2463**	**6.1000e-004**	**0.0657**	**4.2000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365						
Off-Road	1.4197	16.0357	6.6065	0.0141		0.7365	0.7365		0.6775	0.6775						
Total	**1.4197**	**16.0357**	**6.6065**	**0.0141**	**2.2114**	**0.7365**	**2.9479**	**1.1365**	**0.6775**	**1.8141**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0399	0.0273	0.2463	6.1000e-004	0.0657	4.2000e-004	0.0661	0.0174	3.9000e-004	0.0178						
Total	**0.0399**	**0.0273**	**0.2463**	**6.1000e-004**	**0.0657**	**4.2000e-004**	**0.0661**	**0.0174**	**3.9000e-004**	**0.0178**						

3.4 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846						

Total	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0614	1.7549	0.3285	3.6500e-003	0.0881	0.0129	0.1010	0.0254	0.0123	0.0377						
Worker	0.1597	0.1090	0.9851	2.4300e-003	0.2629	1.7000e-003	0.2646	0.0697	1.5600e-003	0.0713						
Total	**0.2211**	**1.8639**	**1.3136**	**6.0800e-003**	**0.3510**	**0.0146**	**0.3655**	**0.0951**	**0.0139**	**0.1090**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2721	15.9802	13.4870	0.0220		0.9158	0.9158		0.8846	0.8846						
Total	**2.2721**	**15.9802**	**13.4870**	**0.0220**		**0.9158**	**0.9158**		**0.8846**	**0.8846**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0614	1.7549	0.3285	3.6500e-003	0.0881	0.0129	0.1010	0.0254	0.0123	0.0377						
Worker	0.1597	0.1090	0.9851	2.4300e-003	0.2629	1.7000e-003	0.2646	0.0697	1.5600e-003	0.0713						
Total	**0.2211**	**1.8639**	**1.3136**	**6.0800e-003**	**0.3510**	**0.0146**	**0.3655**	**0.0951**	**0.0139**	**0.1090**						

3.5 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815						
Paving	0.3956					0.0000	0.0000		0.0000	0.0000						
Total	**1.2995**	**9.1743**	**8.9025**	**0.0135**		**0.5225**	**0.5225**		**0.4815**	**0.4815**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0649	0.0443	0.4002	9.9000e-004	0.1068	6.9000e-004	0.1075	0.0283	6.3000e-004	0.0290						
Total	**0.0649**	**0.0443**	**0.4002**	**9.9000e-004**	**0.1068**	**6.9000e-004**	**0.1075**	**0.0283**	**6.3000e-004**	**0.0290**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9038	9.1743	8.9025	0.0135		0.5225	0.5225		0.4815	0.4815						
Paving	0.3956					0.0000	0.0000		0.0000	0.0000						
Total	**1.2995**	**9.1743**	**8.9025**	**0.0135**		**0.5225**	**0.5225**		**0.4815**	**0.4815**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0649	0.0443	0.4002	9.9000e-004	0.1068	6.9000e-004	0.1075	0.0283	6.3000e-004	0.0290						
Total	**0.0649**	**0.0443**	**0.4002**	**9.9000e-004**	**0.1068**	**6.9000e-004**	**0.1075**	**0.0283**	**6.3000e-004**	**0.0290**						

3.6 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.3926					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288						
Total	**10.6590**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0299	0.0204	0.1847	4.6000e-004	0.0493	3.2000e-004	0.0496	0.0131	2.9000e-004	0.0134						
Total	**0.0299**	**0.0204**	**0.1847**	**4.6000e-004**	**0.0493**	**3.2000e-004**	**0.0496**	**0.0131**	**2.9000e-004**	**0.0134**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	10.3926					0.0000	0.0000		0.0000	0.0000						

Off-Road	0.2664	1.8354	1.8413	2.9700e-003		0.1288	0.1288		0.1288	0.1288						
Total	**10.6590**	**1.8354**	**1.8413**	**2.9700e-003**		**0.1288**	**0.1288**		**0.1288**	**0.1288**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0299	0.0204	0.1847	4.6000e-004	0.0493	3.2000e-004	0.0496	0.0131	2.9000e-004	0.0134						
Total	**0.0299**	**0.0204**	**0.1847**	**4.6000e-004**	**0.0493**	**3.2000e-004**	**0.0496**	**0.0131**	**2.9000e-004**	**0.0134**						

99 and North Phase 2 - Construction Only

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	5.00	1000sqft	0.11	5,000.00	0
Parking Lot	36.00	Space	0.32	14,400.00	0
Other Asphalt Surfaces	0.51	Acre	0.51	22,215.60	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0

1.2 Other Project Characteristics

Urbanization Urban | **Wind Speed (m/s)** 2.2 | **Precipitation Freq (Days)** 45

Climate Zone 3 | **Operational Year** 2022

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 | **CH4 Intensity (lb/MWhr)** 0.029 | **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2461	1.5512	1.4304	2.7100e-003	0.0378	0.0734	0.1112	0.0140	0.0707	0.0847						
Maximum	**0.2461**	**1.5512**	**1.4304**	**2.7100e-003**	**0.0378**	**0.0734**	**0.1112**	**0.0140**	**0.0707**	**0.0847**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2461	1.5512	1.4304	2.7100e-003	0.0292	0.0734	0.1026	9.6200e-003	0.0707	0.0803						
Maximum	**0.2461**	**1.5512**	**1.4304**	**2.7100e-003**	**0.0292**	**0.0734**	**0.1026**	**9.6200e-003**	**0.0707**	**0.0803**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**22.73**	**0.00**	**7.74**	**31.38**	**0.00**	**5.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**1-4-2021**	**4-3-2021**	0.5306	0.5306
2	**4-4-2021**	**7-3-2021**	0.5362	0.5362
3	**7-4-2021**	**9-30-2021**	0.5244	0.5244
		Highest	0.5362	0.5362

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/5/2021	5	2	
2	Grading	Grading	1/6/2021	1/11/2021	5	4	
3	Building Construction	Building Construction	1/12/2021	10/18/2021	5	200	
4	Paving	Paving	10/19/2021	11/1/2021	5	10	
5	Architectural Coating	Architectural Coating	11/2/2021	11/15/2021	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.99

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	20.00	8.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003						
Off-Road	1.5600e-003	0.0174	7.5600e-003	2.0000e-005		7.7000e-004	7.7000e-004		7.0000e-004	7.0000e-004						
Total	**1.5600e-003**	**0.0174**	**7.5600e-003**	**2.0000e-005**	**5.8000e-003**	**7.7000e-004**	**6.5700e-003**	**2.9500e-003**	**7.0000e-004**	**3.6500e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						
Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6100e-003	0.0000	2.6100e-003	1.3300e-003	0.0000	1.3300e-003						
Off-Road	1.5600e-003	0.0174	7.5600e-003	2.0000e-005		7.7000e-004	7.7000e-004		7.0000e-004	7.0000e-004						
Total	**1.5600e-003**	**0.0174**	**7.5600e-003**	**2.0000e-005**	**2.6100e-003**	**7.7000e-004**	**3.3800e-003**	**1.3300e-003**	**7.0000e-004**	**2.0300e-003**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.0000e-005	2.0000e-005	2.0000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						

Total	**3.0000e-005**	**2.0000e-005**	**2.0000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**						

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003						
Off-Road	2.5800e-003	0.0287	0.0127	3.0000e-005		1.2800e-003	1.2800e-003		1.1700e-003	1.1700e-003						
Total	**2.5800e-003**	**0.0287**	**0.0127**	**3.0000e-005**	**9.8300e-003**	**1.2800e-003**	**0.0111**	**5.0500e-003**	**1.1700e-003**	**6.2200e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	6.0000e-005	4.0000e-005	4.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005						
Total	**6.0000e-005**	**4.0000e-005**	**4.0000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.4200e-003	0.0000	4.4200e-003	2.2700e-003	0.0000	2.2700e-003						
Off-Road	2.5800e-003	0.0287	0.0127	3.0000e-005		1.2800e-003	1.2800e-003		1.1700e-003	1.1700e-003						
Total	**2.5800e-003**	**0.0287**	**0.0127**	**3.0000e-005**	**4.4200e-003**	**1.2800e-003**	**5.7000e-003**	**2.2700e-003**	**1.1700e-003**	**3.4400e-003**						

<u>Mitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	6.0000e-005	4.0000e-005	4.0000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005						
Total	**6.0000e-005**	**4.0000e-005**	**4.0000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						

3.4 Building Construction - 2021

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1813	1.3636	1.2899	2.2000e-003		0.0684	0.0684		0.0661	0.0661						
Total	**0.1813**	**1.3636**	**1.2899**	**2.2000e-003**		**0.0684**	**0.0684**		**0.0661**	**0.0661**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	2.4200e-003	0.0901	0.0137	2.2000e-004	5.3000e-003	2.4000e-004	5.5400e-003	1.5300e-003	2.3000e-004	1.7600e-003						
Worker	7.9800e-003	4.8700e-003	0.0504	1.5000e-004	0.0160	1.0000e-004	0.0161	4.2500e-003	9.0000e-005	4.3400e-003						
Total	**0.0104**	**0.0949**	**0.0642**	**3.7000e-004**	**0.0213**	**3.4000e-004**	**0.0216**	**5.7800e-003**	**3.2000e-004**	**6.1000e-003**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1813	1.3636	1.2899	2.2000e-003		0.0684	0.0684		0.0661	0.0661						
Total	**0.1813**	**1.3636**	**1.2899**	**2.2000e-003**		**0.0684**	**0.0684**		**0.0661**	**0.0661**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	2.4200e-003	0.0901	0.0137	2.2000e-004	5.3000e-003	2.4000e-004	5.5400e-003	1.5300e-003	2.3000e-004	1.7600e-003						
Worker	7.9800e-003	4.8700e-003	0.0504	1.5000e-004	0.0160	1.0000e-004	0.0161	4.2500e-003	9.0000e-005	4.3400e-003						
Total	**0.0104**	**0.0949**	**0.0642**	**3.7000e-004**	**0.0213**	**3.4000e-004**	**0.0216**	**5.7800e-003**	**3.2000e-004**	**6.1000e-003**						

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8700e-003	0.0387	0.0443	7.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003						
Paving	1.0900e-003					0.0000	0.0000		0.0000	0.0000						
Total	**4.9600e-003**	**0.0387**	**0.0443**	**7.0000e-005**		**2.0800e-003**	**2.0800e-003**		**1.9100e-003**	**1.9100e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

Worker	2.6000e-004	1.6000e-004	1.6400e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004						
Total	**2.6000e-004**	**1.6000e-004**	**1.6400e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.8700e-003	0.0387	0.0443	7.0000e-005		2.0800e-003	2.0800e-003		1.9100e-003	1.9100e-003						
Paving	1.0900e-003					0.0000	0.0000		0.0000	0.0000						
Total	**4.9600e-003**	**0.0387**	**0.0443**	**7.0000e-005**		**2.0800e-003**	**2.0800e-003**		**1.9100e-003**	**1.9100e-003**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	2.6000e-004	1.6000e-004	1.6400e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004						
Total	**2.6000e-004**	**1.6000e-004**	**1.6400e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**						

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0439					0.0000	0.0000		0.0000	0.0000						
Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004						
Total	**0.0449**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						
Total	**8.0000e-005**	**5.0000e-005**	**5.0000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0439					0.0000	0.0000		0.0000	0.0000						

Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004						
Total	**0.0449**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	8.0000e-005	5.0000e-005	5.0000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						
Total	**8.0000e-005**	**5.0000e-005**	**5.0000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						

99 and North Phase 2 - Construction Only

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	5.00	1000sqft	0.11	5,000.00	0
Parking Lot	36.00	Space	0.32	14,400.00	0
Other Asphalt Surfaces	0.51	Acre	0.51	22,215.60	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	9.0063	17.4416	13.5472	0.0257	5.8653	0.7658	6.6311	2.9711	0.7045	3.6756						
Maximum	**9.0063**	**17.4416**	**13.5472**	**0.0257**	**5.8653**	**0.7658**	**6.6311**	**2.9711**	**0.7045**	**3.6756**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	9.0063	17.4416	13.5472	0.0257	2.6755	0.7658	3.4413	1.3466	0.7045	2.0511						
Maximum	**9.0063**	**17.4416**	**13.5472**	**0.0257**	**2.6755**	**0.7658**	**3.4413**	**1.3466**	**0.7045**	**2.0511**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.38**	**0.00**	**48.10**	**54.68**	**0.00**	**44.20**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/4/2021	1/5/2021	5	2	
2	Grading	Grading	1/6/2021	1/11/2021	5	4	
3	Building Construction	Building Construction	1/12/2021	10/18/2021	5	200	

4	Paving	Paving	10/19/2021	11/1/2021	5	10	
5	Architectural Coating	Architectural Coating	11/2/2021	11/15/2021	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 0.99

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40
Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	20.00	8.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7996	0.0000	5.7996	2.9537	0.0000	2.9537						
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041						
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**5.7996**	**0.7654**	**6.5650**	**2.9537**	**0.7041**	**3.6578**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

Worker	0.0337	0.0213	0.1984	5.7000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178						
Total	**0.0337**	**0.0213**	**0.1984**	**5.7000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.6098	0.0000	2.6098	1.3292	0.0000	1.3292						
Off-Road	1.5558	17.4203	7.5605	0.0172		0.7654	0.7654		0.7041	0.7041						
Total	**1.5558**	**17.4203**	**7.5605**	**0.0172**	**2.6098**	**0.7654**	**3.3752**	**1.3292**	**0.7041**	**2.0333**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0337	0.0213	0.1984	5.7000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178						
Total	**0.0337**	**0.0213**	**0.1984**	**5.7000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**						

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.9143	0.0000	4.9143	2.5256	0.0000	2.5256						
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869						
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**4.9143**	**0.6379**	**5.5522**	**2.5256**	**0.5869**	**3.1125**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0337	0.0213	0.1984	5.7000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178						
Total	**0.0337**	**0.0213**	**0.1984**	**5.7000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2114	0.0000	2.2114	1.1365	0.0000	1.1365						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Off-Road	1.2884	14.3307	6.3314	0.0141		0.6379	0.6379		0.5869	0.5869						
Total	**1.2884**	**14.3307**	**6.3314**	**0.0141**	**2.2114**	**0.6379**	**2.8493**	**1.1365**	**0.5869**	**1.7234**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0337	0.0213	0.1984	5.7000e-004	0.0657	4.0000e-004	0.0661	0.0174	3.7000e-004	0.0178						
Total	**0.0337**	**0.0213**	**0.1984**	**5.7000e-004**	**0.0657**	**4.0000e-004**	**0.0661**	**0.0174**	**3.7000e-004**	**0.0178**						

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608						
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0250	0.8976	0.1518	2.2100e-003	0.0542	2.4700e-003	0.0567	0.0156	2.3700e-003	0.0180						
Worker	0.0842	0.0534	0.4961	1.4200e-003	0.1643	1.0000e-003	0.1653	0.0436	9.2000e-004	0.0445						
Total	**0.1092**	**0.9510**	**0.6478**	**3.6300e-003**	**0.2185**	**3.4700e-003**	**0.2220**	**0.0592**	**3.2900e-003**	**0.0625**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8125	13.6361	12.8994	0.0221		0.6843	0.6843		0.6608	0.6608						
Total	**1.8125**	**13.6361**	**12.8994**	**0.0221**		**0.6843**	**0.6843**		**0.6608**	**0.6608**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Vendor	0.0250	0.8976	0.1518	2.2100e-003	0.0542	2.4700e-003	0.0567	0.0156	2.3700e-003	0.0180						
Worker	0.0842	0.0534	0.4961	1.4200e-003	0.1643	1.0000e-003	0.1653	0.0436	9.2000e-004	0.0445						
Total	**0.1092**	**0.9510**	**0.6478**	**3.6300e-003**	**0.2185**	**3.4700e-003**	**0.2220**	**0.0592**	**3.2900e-003**	**0.0625**						

3.5 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830						
Paving	0.2175					0.0000	0.0000		0.0000	0.0000						
Total	**0.9913**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0547	0.0347	0.3224	9.2000e-004	0.1068	6.5000e-004	0.1074	0.0283	6.0000e-004	0.0289						
Total	**0.0547**	**0.0347**	**0.3224**	**9.2000e-004**	**0.1068**	**6.5000e-004**	**0.1074**	**0.0283**	**6.0000e-004**	**0.0289**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7739	7.7422	8.8569	0.0135		0.4153	0.4153		0.3830	0.3830						
Paving	0.2175					0.0000	0.0000		0.0000	0.0000						
Total	**0.9913**	**7.7422**	**8.8569**	**0.0135**		**0.4153**	**0.4153**		**0.3830**	**0.3830**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0547	0.0347	0.3224	9.2000e-004	0.1068	6.5000e-004	0.1074	0.0283	6.0000e-004	0.0289						
Total	**0.0547**	**0.0347**	**0.3224**	**9.2000e-004**	**0.1068**	**6.5000e-004**	**0.1074**	**0.0283**	**6.0000e-004**	**0.0289**						

3.6 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7706					0.0000	0.0000		0.0000	0.0000						

Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941						
Total	**8.9895**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0168	0.0107	0.0992	2.8000e-004	0.0329	2.0000e-004	0.0331	8.7200e-003	1.8000e-004	8.9000e-003						
Total	**0.0168**	**0.0107**	**0.0992**	**2.8000e-004**	**0.0329**	**2.0000e-004**	**0.0331**	**8.7200e-003**	**1.8000e-004**	**8.9000e-003**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	8.7706					0.0000	0.0000		0.0000	0.0000						
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941						
Total	**8.9895**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**						

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	0.0168	0.0107	0.0992	2.8000e-004	0.0329	2.0000e-004	0.0331	8.7200e-003	1.8000e-004	8.9000e-003						
Total	**0.0168**	**0.0107**	**0.0992**	**2.8000e-004**	**0.0329**	**2.0000e-004**	**0.0331**	**8.7200e-003**	**1.8000e-004**	**8.9000e-003**						

99 and North Phase 4 - Construction Only

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	3.00	1000sqft	0.07	3,000.00	0
Parking Lot	51.00	Space	0.46	20,400.00	0
Other Asphalt Surfaces	0.45	Acre	0.45	19,602.00	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1894	1.2431	1.3751	2.6900e-003	0.0386	0.0482	0.0868	0.0142	0.0464	0.0606						
Maximum	**0.1894**	**1.2431**	**1.3751**	**2.6900e-003**	**0.0386**	**0.0482**	**0.0868**	**0.0142**	**0.0464**	**0.0606**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1894	1.2431	1.3751	2.6900e-003	0.0300	0.0482	0.0782	9.8300e-003	0.0464	0.0562						
Maximum	**0.1894**	**1.2431**	**1.3751**	**2.6900e-003**	**0.0300**	**0.0482**	**0.0782**	**9.8300e-003**	**0.0464**	**0.0562**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**22.26**	**0.02**	**9.91**	**30.92**	**0.00**	**7.26**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**1-8-2024**	**4-7-2024**	0.4255	0.4255
2	**4-8-2024**	**7-7-2024**	0.4311	0.4311
3	**7-8-2024**	**9-30-2024**	0.4027	0.4027
		Highest	0.4311	0.4311

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/8/2024	1/9/2024	5	2	
2	Grading	Grading	1/10/2024	1/15/2024	5	4	
3	Building Construction	Building Construction	1/16/2024	10/21/2024	5	200	
4	Paving	Paving	10/22/2024	11/4/2024	5	10	
5	Architectural Coating	Architectural Coating	11/5/2024	11/18/2024	5	10	

Acres of Grading (Site Preparation Phase): 1

Acres of Grading (Grading Phase): 1.5

Acres of Paving: 1.07

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Cement and Mortar Mixers	1	6.00	9	0.56
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Cranes	1	6.00	231	0.29
Building Construction	Forklifts	1	6.00	89	0.20
Site Preparation	Graders	1	8.00	187	0.41
Paving	Pavers	1	6.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Grading	Rubber Tired Dozers	1	6.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	6.00	187	0.41
Paving	Paving Equipment	1	8.00	132	0.36
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40

Building Construction	Welders	3	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	3	8.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	7	21.00	8.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8000e-003	0.0000	5.8000e-003	2.9500e-003	0.0000	2.9500e-003						
Off-Road	1.1100e-003	0.0118	6.6300e-003	2.0000e-005		4.8000e-004	4.8000e-004		4.4000e-004	4.4000e-004						
Total	**1.1100e-003**	**0.0118**	**6.6300e-003**	**2.0000e-005**	**5.8000e-003**	**4.8000e-004**	**6.2800e-003**	**2.9500e-003**	**4.4000e-004**	**3.3900e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.0000e-005	1.0000e-005	1.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						
Total	**3.0000e-005**	**1.0000e-005**	**1.5000e-004**	**0.0000**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.6100e-003	0.0000	2.6100e-003	1.3300e-003	0.0000	1.3300e-003						
Off-Road	1.1100e-003	0.0118	6.6300e-003	2.0000e-005		4.8000e-004	4.8000e-004		4.4000e-004	4.4000e-004						
Total	**1.1100e-003**	**0.0118**	**6.6300e-003**	**2.0000e-005**	**2.6100e-003**	**4.8000e-004**	**3.0900e-003**	**1.3300e-003**	**4.4000e-004**	**1.7700e-003**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	3.0000e-005	1.0000e-005	1.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						

Total	3.0000e-005	1.0000e-005	1.5000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					9.8300e-003	0.0000	9.8300e-003	5.0500e-003	0.0000	5.0500e-003						
Off-Road	1.8300e-003	0.0195	0.0111	3.0000e-005		8.0000e-004	8.0000e-004		7.4000e-004	7.4000e-004						
Total	**1.8300e-003**	**0.0195**	**0.0111**	**3.0000e-005**	**9.8300e-003**	**8.0000e-004**	**0.0106**	**5.0500e-003**	**7.4000e-004**	**5.7900e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	5.0000e-005	3.0000e-005	3.1000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005						
Total	**5.0000e-005**	**3.0000e-005**	**3.1000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.4200e-003	0.0000	4.4200e-003	2.2700e-003	0.0000	2.2700e-003						
Off-Road	1.8300e-003	0.0195	0.0111	3.0000e-005		8.0000e-004	8.0000e-004		7.4000e-004	7.4000e-004						
Total	**1.8300e-003**	**0.0195**	**0.0111**	**3.0000e-005**	**4.4200e-003**	**8.0000e-004**	**5.2200e-003**	**2.2700e-003**	**7.4000e-004**	**3.0100e-003**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	5.0000e-005	3.0000e-005	3.1000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	3.0000e-005	0.0000	3.0000e-005						
Total	**5.0000e-005**	**3.0000e-005**	**3.1000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**						

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1420	1.1064	1.2517	2.2100e-003		0.0451	0.0451		0.0435	0.0435						
Total	**0.1420**	**1.1064**	**1.2517**	**2.2100e-003**		**0.0451**	**0.0451**		**0.0435**	**0.0435**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	1.5000e-003	0.0662	9.8100e-003	2.2000e-004	5.3000e-003	6.0000e-005	5.3700e-003	1.5300e-003	6.0000e-005	1.5900e-003						
Worker	6.7800e-003	3.6700e-003	0.0405	1.4000e-004	0.0168	1.0000e-004	0.0169	4.4600e-003	9.0000e-005	4.5500e-003						
Total	**8.2800e-003**	**0.0698**	**0.0504**	**3.6000e-004**	**0.0221**	**1.6000e-004**	**0.0223**	**5.9900e-003**	**1.5000e-004**	**6.1400e-003**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1420	1.1064	1.2517	2.2100e-003		0.0451	0.0451		0.0435	0.0435						
Total	**0.1420**	**1.1064**	**1.2517**	**2.2100e-003**		**0.0451**	**0.0451**		**0.0435**	**0.0435**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	1.5000e-003	0.0662	9.8100e-003	2.2000e-004	5.3000e-003	6.0000e-005	5.3700e-003	1.5300e-003	6.0000e-005	1.5900e-003						
Worker	6.7800e-003	3.6700e-003	0.0405	1.4000e-004	0.0168	1.0000e-004	0.0169	4.4600e-003	9.0000e-005	4.5500e-003						
Total	**8.2800e-003**	**0.0698**	**0.0504**	**3.6000e-004**	**0.0221**	**1.6000e-004**	**0.0223**	**5.9900e-003**	**1.5000e-004**	**6.1400e-003**						

3.5 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003						
Paving	1.1900e-003					0.0000	0.0000		0.0000	0.0000						
Total	**4.2800e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						

Worker	2.1000e-004	1.1000e-004	1.2500e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004						
Total	**2.1000e-004**	**1.1000e-004**	**1.2500e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**						

<u>Mitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.0900e-003	0.0293	0.0441	7.0000e-005		1.4100e-003	1.4100e-003		1.3000e-003	1.3000e-003						
Paving	1.1900e-003					0.0000	0.0000		0.0000	0.0000						
Total	**4.2800e-003**	**0.0293**	**0.0441**	**7.0000e-005**		**1.4100e-003**	**1.4100e-003**		**1.3000e-003**	**1.3000e-003**						

<u>Mitigated Construction Off-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	2.1000e-004	1.1000e-004	1.2500e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004						
Total	**2.1000e-004**	**1.1000e-004**	**1.2500e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**						

3.6 Architectural Coating - 2024

<u>Unmitigated Construction On-Site</u>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0307					0.0000	0.0000		0.0000	0.0000						
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004						
Total	**0.0316**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**						

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	6.0000e-005	3.0000e-005	3.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						
Total	**6.0000e-005**	**3.0000e-005**	**3.9000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0307					0.0000	0.0000		0.0000	0.0000						

Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004						
Total	**0.0316**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**						

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						
Worker	6.0000e-005	3.0000e-005	3.9000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005						
Total	**6.0000e-005**	**3.0000e-005**	**3.9000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**						

99 and North Phase 3 - Construction Only

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Strip Mall	3.00	1000sqft	0.07	3,000.00	0
Parking Lot	51.00	Space	0.46	20,400.00	0
Other Asphalt Surfaces	0.45	Acre	0.45	19,602.00	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	6.3251	11.8560	13.0204	0.0255	5.8653	0.4826	6.3479	2.9711	0.4440	3.4151						
Maximum	**6.3251**	**11.8560**	**13.0204**	**0.0255**	**5.8653**	**0.4826**	**6.3479**	**2.9711**	**0.4440**	**3.4151**						

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	6.3251	11.8560	13.0204	0.0255	2.6755	0.4826	3.1582	1.3466	0.4440	1.7906						
Maximum	**6.3251**	**11.8560**	**13.0204**	**0.0255**	**2.6755**	**0.4826**	**3.1582**	**1.3466**	**0.4440**	**1.7906**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**54.38**	**0.00**	**50.25**	**54.68**	**0.00**	**47.57**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

CALEEMOD

Operational Results

99 and North - Operational - Convenience Market w Gas Station

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.97	Acre	0.97	42,253.20	0
Parking Lot	47.00	Space	0.72	18,800.00	0
Convenience Market With Gas Pumps	12.00	Pump	0.04	1,694.10	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan with parking from Panda Express

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition does not have Sat or Sun trip rate the defaults were used. Estimate of 3 miles for service area for customers. TIS for trip %

Fleet Mix - Revised fleet mix based on estimated truck trips

Table Name	Column Name	Default Value	New Value

tblFleetMix	HHD	0.12	8.3400e-004
tblFleetMix	LDA	0.48	0.59
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	4.9970e-003	0.00
tblFleetMix	MHD	0.03	8.3400e-004
tblLandUse	LotAcreage	0.42	0.72
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	21.00	11.00
tblVehicleTrips	PB_TP	65.00	25.00
tblVehicleTrips	PR_TP	14.00	64.00
tblVehicleTrips	WD_TR	542.60	205.36

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0131	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	1.0000e-004	8.9000e-004	7.5000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005						
Mobile	0.6337	0.7248	4.6071	9.3500e-003	0.8478	8.5100e-003	0.8563	0.2263	7.9100e-003	0.2342						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.6469**	**0.7257**	**4.6084**	**9.3600e-003**	**0.8478**	**8.5800e-003**	**0.8563**	**0.2263**	**7.9800e-003**	**0.2343**						

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Area	0.0131	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	1.0000e-004	8.9000e-004	7.5000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005						
Mobile	0.6337	0.7248	4.6071	9.3500e-003	0.8478	8.5100e-003	0.8563	0.2263	7.9100e-003	0.2342						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.6469**	**0.7257**	**4.6084**	**9.3600e-003**	**0.8478**	**8.5800e-003**	**0.8563**	**0.2263**	**7.9800e-003**	**0.2343**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.6337	0.7248	4.6071	9.3500e-003	0.8478	8.5100e-003	0.8563	0.2263	7.9100e-003	0.2342						

Unmitigated	0.6337	0.7248	4.6071	9.3500e-003	0.8478	8.5100e-003	0.8563	0.2263	7.9100e-003	0.2342						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,464.32	2,453.64	2002.56	2,274,952	2,274,952
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Total	2,464.32	2,453.64	2,002.56	2,274,952	2,274,952

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas P	9.50	3.00	7.30	0.80	80.20	19.00	64	11	25
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.593367	0.040439	0.207844	0.127212	0.018382	0.000000	0.000834	0.000834	0.002369	0.001675	0.005261	0.001115	0.000667
Other Non-Asphalt Surfaces	0.481390	0.032808	0.168621	0.127212	0.018382	0.004997	0.032622	0.122881	0.002369	0.001675	0.005261	0.001115	0.000667
Parking Lot	0.481390	0.032808	0.168621	0.127212	0.018382	0.004997	0.032622	0.122881	0.002369	0.001675	0.005261	0.001115	0.000667

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						
NaturalGas Mitigated	1.0000e-004	8.9000e-004	7.5000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005						
NaturalGas Unmitigated	1.0000e-004	8.9000e-004	7.5000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas	18126.9	1.0000e-004	8.9000e-004	7.5000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**1.0000e-004**	**8.9000e-004**	**7.5000e-004**	**1.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Convenience Market With Gas	18126.9	1.0000e-004	8.9000e-004	7.5000e-004	1.0000e-005		7.0000e-005	7.0000e-005		7.0000e-005	7.0000e-005						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**1.0000e-004**	**8.9000e-004**	**7.5000e-004**	**1.0000e-005**		**7.0000e-005**	**7.0000e-005**		**7.0000e-005**	**7.0000e-005**						

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas	13806.9				
Other Non-Asphalt Surfaces	0				
Parking Lot	6580				
Total					

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas	13806.9				
Other Non-Asphalt Surfaces	0				
Parking Lot	6580				
Total					

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0131	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Unmitigated	0.0131	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.4500e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0106					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0131**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.4500e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0106					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.0000e-005	1.0000e-005	5.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0131**	**1.0000e-005**	**5.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				
Unmitigated				

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			

Convenience Market With Gas Pumps	0.125486 / 0.0769109				
Other Non-Asphalt Surfaces	0 / 0				
Parking Lot	0 / 0				
Total					

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.125486 / 0.0769109				
Other Non-Asphalt Surfaces	0 / 0				
Parking Lot	0 / 0				
Total					

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				

Unmitigated				

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0				
Parking Lot	0				
Total					

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Non-Asphalt Surfaces	0				
Parking Lot	0				
Total					

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North - Operational - Convenience Market w Gas Station

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	0.97	Acre	0.97	42,253.20	0
Parking Lot	47.00	Space	0.72	18,800.00	0
Convenience Market With Gas Pumps	12.00	Pump	0.04	1,694.10	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan with parking from Panda Express

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition does not have Sat or Sun trip rate the defaults were used. Estimate of 3 miles for service area for customers. TIS for trip %

Fleet Mix - Revised fleet mix based on estimated truck trips

Table Name	Column Name	Default Value	New Value

tblFleetMix	HHD	0.12	8.3400e-004
tblFleetMix	LDA	0.48	0.59
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	4.9970e-003	0.00
tblFleetMix	MHD	0.03	8.3400e-004
tblLandUse	LotAcreage	0.42	0.72
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	21.00	11.00
tblVehicleTrips	PB_TP	65.00	25.00
tblVehicleTrips	PR_TP	14.00	64.00
tblVehicleTrips	WD_TR	542.60	205.36

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0719	6.0000e-005	6.1600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004						
Mobile	3.2302	4.3396	27.9923	0.0511	4.9201	0.0482	4.9683	1.3104	0.0448	1.3552						
Total	**3.3027**	**4.3446**	**28.0025**	**0.0511**	**4.9201**	**0.0486**	**4.9687**	**1.3104**	**0.0452**	**1.3556**						

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Area	0.0719	6.0000e-005	6.1600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004						
Mobile	3.2302	4.3396	27.9923	0.0511	4.9201	0.0482	4.9683	1.3104	0.0448	1.3552						
Total	**3.3027**	**4.3446**	**28.0025**	**0.0511**	**4.9201**	**0.0486**	**4.9687**	**1.3104**	**0.0452**	**1.3556**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	3.2302	4.3396	27.9923	0.0511	4.9201	0.0482	4.9683	1.3104	0.0448	1.3552						
Unmitigated	3.2302	4.3396	27.9923	0.0511	4.9201	0.0482	4.9683	1.3104	0.0448	1.3552						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,464.32	2,453.64	2002.56	2,274,952	2,274,952
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		

Total	2,464.32	2,453.64	2,002.56	2,274,952	2,274,952

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Convenience Market With Gas	9.50	3.00	7.30	0.80	80.20	19.00	64	11	25
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.593367	0.040439	0.207844	0.127212	0.018382	0.000000	0.000834	0.000834	0.002369	0.001675	0.005261	0.001115	0.000667
Other Non-Asphalt Surfaces	0.481390	0.032808	0.168621	0.127212	0.018382	0.004997	0.032622	0.122881	0.002369	0.001675	0.005261	0.001115	0.000667
Parking Lot	0.481390	0.032808	0.168621	0.127212	0.018382	0.004997	0.032622	0.122881	0.002369	0.001675	0.005261	0.001115	0.000667

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004						
NaturalGas Unmitigated	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas	49.6627	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**5.4000e-004**	**4.8700e-003**	**4.0900e-003**	**3.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Convenience Market With Gas	0.0496627	5.4000e-004	4.8700e-003	4.0900e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Total		**5.4000e-004**	**4.8700e-003**	**4.0900e-003**	**3.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0719	6.0000e-005	6.1600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Unmitigated	0.0719	6.0000e-005	6.1600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0134					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0579					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.8000e-004	6.0000e-005	6.1600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**0.0719**	**6.0000e-005**	**6.1600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					

Architectural Coating	0.0134					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0579					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.8000e-004	6.0000e-005	6.1600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**0.0719**	**6.0000e-005**	**6.1600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North - Operational - Panda Express

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Fast Food Restaurant with Drive Thru	2.23	1000sqft	0.05	2,227.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition for Sat or Sun trip rate. Estimate of 3 miles for service area for customers. Trip % from TIS

Fleet Mix - Revised fleet mix based on estimated truck trips

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.12	2.5700e-004
tblFleetMix	LDA	0.48	0.59

tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	4.9970e-003	1.7200e-004
tblFleetMix	MHD	0.03	9.4400e-004
tblLandUse	LandUseSquareFeet	2,230.00	2,227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	21.00	11.00
tblVehicleTrips	PB_TP	50.00	25.00
tblVehicleTrips	PR_TP	29.00	64.00
tblVehicleTrips	ST_TR	722.03	616.12
tblVehicleTrips	SU_TR	542.72	472.58
tblVehicleTrips	WD_TR	496.12	470.95

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0103	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003						
Mobile	0.2908	0.3235	2.1343	4.3500e-003	0.3970	3.9500e-003	0.4010	0.1060	3.6700e-003	0.1096						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.3036**	**0.3465**	**2.1536**	**4.4900e-003**	**0.3970**	**5.7000e-003**	**0.4027**	**0.1060**	**5.4200e-003**	**0.1114**						

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Area	0.0103	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003						
Mobile	0.2908	0.3235	2.1343	4.3500e-003	0.3970	3.9500e-003	0.4010	0.1060	3.6700e-003	0.1096						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.3036**	**0.3465**	**2.1536**	**4.4900e-003**	**0.3970**	**5.7000e-003**	**0.4027**	**0.1060**	**5.4200e-003**	**0.1114**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.2908	0.3235	2.1343	4.3500e-003	0.3970	3.9500e-003	0.4010	0.1060	3.6700e-003	0.1096						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated	0.2908	0.3235	2.1343	4.3500e-003	0.3970	3.9500e-003	0.4010	0.1060	3.6700e-003	0.1096						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	1,050.22	1,373.95	1053.85	1,065,459	1,065,459
Total	1,050.22	1,373.95	1,053.85	1,065,459	1,065,459

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant with	9.50	3.00	7.30	2.20	78.80	19.00	64	11	25

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.593575	0.040454	0.207917	0.127212	0.018382	0.000172	0.000944	0.000257	0.002369	0.001675	0.005261	0.001115	0.000667

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						

NaturalGas Mitigated	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003						
NaturalGas Unmitigated	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant with	468605	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003						
Total		**2.5300e-003**	**0.0230**	**0.0193**	**1.4000e-004**		**1.7500e-003**	**1.7500e-003**		**1.7500e-003**	**1.7500e-003**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant with	468605	2.5300e-003	0.0230	0.0193	1.4000e-004		1.7500e-003	1.7500e-003		1.7500e-003	1.7500e-003						
Total		**2.5300e-003**	**0.0230**	**0.0193**	**1.4000e-004**		**1.7500e-003**	**1.7500e-003**		**1.7500e-003**	**1.7500e-003**						

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with	64516.2				
Total					

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with	64516.2				
Total					

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0103	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated	0.0103	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5500e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	8.7000e-003					0.0000	0.0000		0.0000	0.0000						
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0103**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.5500e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	8.7000e-003					0.0000	0.0000		0.0000	0.0000						
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0103**	**0.0000**	**2.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

7.0 Water Detail

7.1 Mitigation Measures Water

Category	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				
Unmitigated				

7.2 Water by Land Use

Unmitigated

Land Use	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
	Mgal	MT/yr			
Fast Food Restaurant with	0.67688 / 0.0432051				
Total					

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr		
Fast Food Restaurant with	0.67688 / 0.0432051			
Total				

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				
Unmitigated				

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with	25.69				
Total					

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with	25.69				
Total					

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North - Operational - Panda Express

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Fast Food Restaurant with Drive Thru	2.23	1000sqft	0.05	2,227.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2020

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition for Sat or Sun trip rate. Estimate of 3 miles for service area for customers. Trip % from TIS

Fleet Mix - Revised fleet mix based on estimated truck trips

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.12	2.5700e-004
tblFleetMix	LDA	0.48	0.59

tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	4.9970e-003	1.7200e-004
tblFleetMix	MHD	0.03	9.4400e-004
tblLandUse	LandUseSquareFeet	2,230.00	2,227.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	21.00	11.00
tblVehicleTrips	PB_TP	50.00	25.00
tblVehicleTrips	PR_TP	29.00	64.00
tblVehicleTrips	ST_TR	722.03	616.12
tblVehicleTrips	SU_TR	542.72	472.58
tblVehicleTrips	WD_TR	496.12	470.95

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0562	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0139	0.1259	0.1057	7.6000e-004		9.5700e-003	9.5700e-003		9.5700e-003	9.5700e-003						
Mobile	1.8058	2.3663	15.7726	0.0290	2.8070	0.0273	2.8342	0.7476	0.0253	0.7729						
Total	**1.8759**	**2.4922**	**15.8785**	**0.0297**	**2.8070**	**0.0368**	**2.8438**	**0.7476**	**0.0349**	**0.7825**						

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Area	0.0562	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0139	0.1259	0.1057	7.6000e-004		9.5700e-003	9.5700e-003		9.5700e-003	9.5700e-003						
Mobile	1.8058	2.3663	15.7726	0.0290	2.8070	0.0273	2.8342	0.7476	0.0253	0.7729						
Total	**1.8759**	**2.4922**	**15.8785**	**0.0297**	**2.8070**	**0.0368**	**2.8438**	**0.7476**	**0.0349**	**0.7825**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	1.8058	2.3663	15.7726	0.0290	2.8070	0.0273	2.8342	0.7476	0.0253	0.7729						
Unmitigated	1.8058	2.3663	15.7726	0.0290	2.8070	0.0273	2.8342	0.7476	0.0253	0.7729						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	1,050.22	1,373.95	1053.85	1,065,459	1,065,459
Total	1,050.22	1,373.95	1,053.85	1,065,459	1,065,459

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant with	9.50	3.00	7.30	2.20	78.80	19.00	64	11	25

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.593575	0.040454	0.207917	0.127212	0.018382	0.000172	0.000944	0.000257	0.002369	0.001675	0.005261	0.001115	0.000667

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0139	0.1259	0.1057	7.6000e-004		9.5700e-003	9.5700e-003		9.5700e-003	9.5700e-003						
NaturalGas Unmitigated	0.0139	0.1259	0.1057	7.6000e-004		9.5700e-003	9.5700e-003		9.5700e-003	9.5700e-003						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant with	1283.85	0.0139	0.1259	0.1057	7.6000e-004		9.5700e-003	9.5700e-003		9.5700e-003	9.5700e-003						
Total		**0.0139**	**0.1259**	**0.1057**	**7.6000e-004**		**9.5700e-003**	**9.5700e-003**		**9.5700e-003**	**9.5700e-003**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant with	1.28385	0.0139	0.1259	0.1057	7.6000e-004		9.5700e-003	9.5700e-003		9.5700e-003	9.5700e-003						
Total		**0.0139**	**0.1259**	**0.1057**	**7.6000e-004**		**9.5700e-003**	**9.5700e-003**		**9.5700e-003**	**9.5700e-003**						

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
Mitigated	0.0562	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Unmitigated	0.0562	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.4900e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0477					0.0000	0.0000		0.0000	0.0000						
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0562**	**0.0000**	**2.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	8.4900e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0477					0.0000	0.0000		0.0000	0.0000						
Landscaping	2.0000e-005	0.0000	2.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

Total	**0.0562**	**0.0000**	**2.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North 5K Building Operational

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.51	Acre	0.51	22,215.60	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0
Parking Lot	36.00	Space	0.32	14,400.00	0
Fast Food Restaurant with Drive Thru	2.00	1000sqft	0.05	1,998.00	0
Strip Mall	3.00	1000sqft	0.07	3,002.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Assumed worst-case - FF rest w drive through. Traffic study and ITE 10th Edition. 3 mile service area

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on estimated trucks

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.13	4.0000e-004
tblFleetMix	HHD	0.13	4.0000e-004
tblFleetMix	LDA	0.49	0.61
tblFleetMix	LDA	0.49	0.61
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	4.5020e-003	2.6700e-004
tblFleetMix	LHD2	4.5020e-003	2.6700e-004
tblFleetMix	MHD	0.03	1.2010e-003
tblFleetMix	MHD	0.03	1.2010e-003
tblLandUse	LandUseSquareFeet	2,000.00	1,998.00
tblLandUse	LandUseSquareFeet	3,000.00	3,002.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	21.00	11.00
tblVehicleTrips	DV_TP	40.00	11.00
tblVehicleTrips	PB_TP	50.00	25.00
tblVehicleTrips	PB_TP	15.00	25.00
tblVehicleTrips	PR_TP	29.00	64.00
tblVehicleTrips	PR_TP	45.00	64.00
tblVehicleTrips	ST_TR	722.03	673.64
tblVehicleTrips	ST_TR	42.04	616.12
tblVehicleTrips	SU_TR	542.72	421.82
tblVehicleTrips	SU_TR	20.43	472.58

tblVehicleTrips	WD_TR	496.12	820.38
tblVehicleTrips	WD_TR	44.32	470.95

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0268	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	2.4400e-003	0.0222	0.0186	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003						
Mobile	0.6696	0.7639	5.0113	0.0120	1.1959	0.0106	1.2065	0.3191	9.7900e-003	0.3289						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.6988**	**0.7861**	**5.0303**	**0.0122**	**1.1959**	**0.0122**	**1.2082**	**0.3191**	**0.0115**	**0.3306**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0268	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	2.4400e-003	0.0222	0.0186	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003						
Mobile	0.6696	0.7639	5.0113	0.0120	1.1959	0.0106	1.2065	0.3191	9.7900e-003	0.3289						

Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.6988**	**0.7861**	**5.0303**	**0.0122**	**1.1959**	**0.0122**	**1.2082**	**0.3191**	**0.0115**	**0.3306**						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6696	0.7639	5.0113	0.0120	1.1959	0.0106	1.2065	0.3191	9.7900e-003	0.3289						
Unmitigated	0.6696	0.7639	5.0113	0.0120	1.1959	0.0106	1.2065	0.3191	9.7900e-003	0.3289						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	1,640.76	1,347.28	843.64	1,442,284	1,442,284
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,412.85	1,848.36	1417.74	1,768,971	1,768,971
Total	3,053.61	3,195.64	2,261.38	3,211,255	3,211,255

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

Fast Food Restaurant with Drive Thru	9.50	3.00	7.30	2.20	78.80	19.00	64	11	25
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	3.00	7.30	16.60	64.40	19.00	64	11	25

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.607500	0.038442	0.209596	0.116157	0.015815	0.000267	0.001201	0.000400	0.002363	0.001519	0.005062	0.001083	0.000594
Other Asphalt Surfaces	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Other Non-Asphalt Surfaces	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Parking Lot	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Strip Mall	0.607500	0.038442	0.209596	0.116157	0.015815	0.000267	0.001201	0.000400	0.002363	0.001519	0.005062	0.001083	0.000594

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						
NaturalGas Mitigated	2.4400e-003	0.0222	0.0186	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003						
NaturalGas Unmitigated	2.4400e-003	0.0222	0.0186	1.3000e-004		1.6900e-003	1.6900e-003		1.6900e-003	1.6900e-003						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant with	420419	2.2700e-003	0.0206	0.0173	1.2000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003						
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Strip Mall	32121.4	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						
Total		**2.4400e-003**	**0.0222**	**0.0186**	**1.3000e-004**		**1.6900e-003**	**1.6900e-003**		**1.6900e-003**	**1.6900e-003**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Fast Food Restaurant with	420419	2.2700e-003	0.0206	0.0173	1.2000e-004		1.5700e-003	1.5700e-003		1.5700e-003	1.5700e-003						
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Strip Mall	32121.4	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						
Total		**2.4400e-003**	**0.0222**	**0.0186**	**1.3000e-004**		**1.6900e-003**	**1.6900e-003**		**1.6900e-003**	**1.6900e-003**						

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	57882.1				
Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	5040				
Strip Mall	24466.3				
Total					

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Fast Food Restaurant with Drive Thru	57882.1				
Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	5040				
Strip Mall	24466.3				
Total					

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0268	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Unmitigated	0.0268	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.3900e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0223					0.0000	0.0000		0.0000	0.0000						
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0268**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.3900e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0223					0.0000	0.0000		0.0000	0.0000						
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0268**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				
Unmitigated				

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	0.607067 / 0.038749				
Other Asphalt Surfaces	0 / 0				
Other Non-Asphalt Surfaces	0 / 0				
Parking Lot	0 / 0				
Strip Mall	0.222218 / 0.136198				
Total					

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Fast Food Restaurant with Drive Thru	0.485654 / 0.0363853				
Other Asphalt Surfaces	0 / 0				
Other Non-Asphalt Surfaces	0 / 0				
Parking Lot	0 / 0				
Strip Mall	0.177774 / 0.12789				
Total					

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				
Unmitigated				

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Fast Food Restaurant with Drive Thru	23.04				
Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	0				
Strip Mall	3.15				
Total					

Mitigated

	Waste Disposed	Total CO_2	CH_4	N_2O	CO_2e
Land Use	tons	MT/yr			
Fast Food Restaurant with	23.04				
Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	0				
Strip Mall	3.15				
Total					

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North 5K Building Operational

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.51	Acre	0.51	22,215.60	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0
Parking Lot	36.00	Space	0.32	14,400.00	0
Fast Food Restaurant with Drive Thru	2.00	1000sqft	0.05	1,998.00	0
Strip Mall	3.00	1000sqft	0.07	3,002.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Assumed worst-case - FF rest w drive through. Traffic study and ITE 10th Edition. 3 mile service area

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on estimated trucks

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.13	4.0000e-004
tblFleetMix	HHD	0.13	4.0000e-004
tblFleetMix	LDA	0.49	0.61
tblFleetMix	LDA	0.49	0.61
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	4.5020e-003	2.6700e-004
tblFleetMix	LHD2	4.5020e-003	2.6700e-004
tblFleetMix	MHD	0.03	1.2010e-003
tblFleetMix	MHD	0.03	1.2010e-003
tblLandUse	LandUseSquareFeet	2,000.00	1,998.00
tblLandUse	LandUseSquareFeet	3,000.00	3,002.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	21.00	11.00
tblVehicleTrips	DV_TP	40.00	11.00
tblVehicleTrips	PB_TP	50.00	25.00
tblVehicleTrips	PB_TP	15.00	25.00
tblVehicleTrips	PR_TP	29.00	64.00
tblVehicleTrips	PR_TP	45.00	64.00
tblVehicleTrips	ST_TR	722.03	673.64
tblVehicleTrips	ST_TR	42.04	616.12
tblVehicleTrips	SU_TR	542.72	421.82
tblVehicleTrips	SU_TR	20.43	472.58

tblVehicleTrips	WD_TR	496.12	820.38
tblVehicleTrips	WD_TR	44.32	470.95

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1469	4.0000e-005	4.2600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	0.0134	0.1216	0.1021	7.3000e-004		9.2400e-003	9.2400e-003		9.2400e-003	9.2400e-003						
Mobile	3.8873	5.2638	34.5747	0.0757	8.0079	0.0688	8.0767	2.1320	0.0638	2.1958						
Total	**4.0475**	**5.3853**	**34.6811**	**0.0765**	**8.0079**	**0.0780**	**8.0859**	**2.1320**	**0.0731**	**2.2051**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.1469	4.0000e-005	4.2100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						
Energy	0.0134	0.1216	0.1021	7.3000e-004		9.2400e-003	9.2400e-003		9.2400e-003	9.2400e-003						
Mobile	3.8873	5.2638	34.5747	0.0757	8.0079	0.0688	8.0767	2.1320	0.0638	2.1958						
Total	**4.0475**	**5.3853**	**34.6810**	**0.0765**	**8.0079**	**0.0780**	**8.0859**	**2.1320**	**0.0731**	**2.2051**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.01**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.8873	5.2638	34.5747	0.0757	8.0079	0.0688	8.0767	2.1320	0.0638	2.1958						
Unmitigated	3.8873	5.2638	34.5747	0.0757	8.0079	0.0688	8.0767	2.1320	0.0638	2.1958						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Fast Food Restaurant with Drive Thru	1,640.76	1,347.28	843.64	1,442,284	1,442,284
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,412.85	1,848.36	1417.74	1,768,971	1,768,971
Total	3,053.61	3,195.64	2,261.38	3,211,255	3,211,255

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Fast Food Restaurant with	9.50	3.00	7.30	2.20	78.80	19.00	64	11	25
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	3.00	7.30	16.60	64.40	19.00	64	11	25

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Fast Food Restaurant with Drive Thru	0.607500	0.038442	0.209596	0.116157	0.015815	0.000267	0.001201	0.000400	0.002363	0.001519	0.005062	0.001083	0.000594

Other Asphalt Surfaces	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Other Non-Asphalt Surfaces	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Parking Lot	0.492212	0.031147	0.169820	0.116157	0.015815	0.004502	0.033398	0.126328	0.002363	0.001519	0.005062	0.001083	0.000594
Strip Mall	0.607500	0.038442	0.209596	0.116157	0.015815	0.000267	0.001201	0.000400	0.002363	0.001519	0.005062	0.001083	0.000594

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0134	0.1216	0.1021	7.3000e-004		9.2400e-003	9.2400e-003		9.2400e-003	9.2400e-003						
NaturalGas Unmitigated	0.0134	0.1216	0.1021	7.3000e-004		9.2400e-003	9.2400e-003		9.2400e-003	9.2400e-003						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant with	1151.83	0.0124	0.1129	0.0949	6.8000e-004		8.5800e-003	8.5800e-003		8.5800e-003	8.5800e-003						
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Strip Mall	88.0038	9.5000e-004	8.6300e-003	7.2500e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						
Total		**0.0134**	**0.1216**	**0.1021**	**7.3000e-004**		**9.2400e-003**	**9.2400e-003**		**9.2400e-003**	**9.2400e-003**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Fast Food Restaurant with Drive Thru	1.15183	0.0124	0.1129	0.0949	6.8000e-004		8.5800e-003	8.5800e-003		8.5800e-003	8.5800e-003						
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Strip Mall	0.0880038	9.5000e-004	8.6300e-003	7.2500e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						
Total		**0.0134**	**0.1216**	**0.1021**	**7.3000e-004**		**9.2400e-003**	**9.2400e-003**		**9.2400e-003**	**9.2400e-003**						

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.1469	4.0000e-005	4.2100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						
Unmitigated	0.1469	4.0000e-005	4.2600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0240					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.1224					0.0000	0.0000		0.0000	0.0000						
Landscaping	4.0000e-004	4.0000e-005	4.2600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**0.1469**	**4.0000e-005**	**4.2600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					

Architectural Coating	0.0240					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.1224					0.0000	0.0000		0.0000	0.0000						
Landscaping	3.9000e-004	4.0000e-005	4.2100e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005						
Total	**0.1469**	**4.0000e-005**	**4.2100e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**						

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North 3K Building - Operational

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.45	Acre	0.45	19,602.00	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0
Parking Lot	51.00	Space	0.46	20,400.00	0
Strip Mall	3.00	1000sqft	0.07	3,000.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.2 **Precipitation Freq (Days)** 45

Climate Zone 3 **Operational Year** 2025

Utility Company Pacific Gas & Electric Company

CO2 Intensity (lb/MWhr) 641.35 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Used worst-case of FF Rest w drive through. Traffic study and ITE 10th edition. 3 mile service area. Trip % from TIS

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on truck trips

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.13	4.0000e-004
tblFleetMix	LDA	0.51	0.62
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	3.9290e-003	2.6700e-004
tblFleetMix	MHD	0.03	1.2010e-003
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	4.00	0.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	40.00	11.00
tblVehicleTrips	PB_TP	15.00	25.00
tblVehicleTrips	PR_TP	45.00	64.00
tblVehicleTrips	ST_TR	42.04	616.12
tblVehicleTrips	SU_TR	20.43	472.58
tblVehicleTrips	WD_TR	44.32	470.95

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0179	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Energy	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						
Mobile	0.2716	0.2984	2.0701	5.7900e-003	0.6583	5.1200e-003	0.6634	0.1756	4.7400e-003	0.1803						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.2896**	**0.3000**	**2.0719**	**5.8000e-003**	**0.6583**	**5.2400e-003**	**0.6635**	**0.1756**	**4.8600e-003**	**0.1804**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0179	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						
Mobile	0.2716	0.2984	2.0701	5.7900e-003	0.6583	5.1200e-003	0.6634	0.1756	4.7400e-003	0.1803						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**0.2896**	**0.3000**	**2.0719**	**5.8000e-003**	**0.6583**	**5.2400e-003**	**0.6635**	**0.1756**	**4.8600e-003**	**0.1804**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.2716	0.2984	2.0701	5.7900e-003	0.6583	5.1200e-003	0.6634	0.1756	4.7400e-003	0.1803						
Unmitigated	0.2716	0.2984	2.0701	5.7900e-003	0.6583	5.1200e-003	0.6634	0.1756	4.7400e-003	0.1803						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,412.85	1,848.36	1417.74	1,768,971	1,768,971
Total	1,412.85	1,848.36	1,417.74	1,768,971	1,768,971

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	3.00	7.30	16.60	64.40	19.00	64	11	25

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.505528	0.029619	0.172275	0.104063	0.012782	0.003929	0.033727	0.128026	0.002328	0.001354	0.004810	0.001048	0.000512
Other Non-Asphalt Surfaces	0.505528	0.029619	0.172275	0.104063	0.012782	0.003929	0.033727	0.128026	0.002328	0.001354	0.004810	0.001048	0.000512
Parking Lot	0.505528	0.029619	0.172275	0.104063	0.012782	0.003929	0.033727	0.128026	0.002328	0.001354	0.004810	0.001048	0.000512
Strip Mall	0.622590	0.036478	0.212168	0.104063	0.012782	0.000267	0.001201	0.000400	0.002328	0.001354	0.004810	0.001048	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						
NaturalGas Mitigated	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						
NaturalGas Unmitigated	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Strip Mall	32100	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						
Total		**1.7000e-004**	**1.5700e-003**	**1.3200e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Strip Mall	32100	1.7000e-004	1.5700e-003	1.3200e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004						
Total		**1.7000e-004**	**1.5700e-003**	**1.3200e-003**	**1.0000e-005**		**1.2000e-004**	**1.2000e-004**		**1.2000e-004**	**1.2000e-004**						

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	7140				
Strip Mall	24450				
Total					

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	7140				
Strip Mall	24450				
Total					

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0179	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Unmitigated	0.0179	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.0700e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0148					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.0000e-005	0.0000	5.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0179**	**0.0000**	**5.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	3.0700e-003					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0148					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.0000e-005	0.0000	4.9000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Total	**0.0179**	**0.0000**	**4.9000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				
Unmitigated				

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0				
Other Non-Asphalt Surfaces	0 / 0				
Parking Lot	0 / 0				
Strip Mall	0.222218 / 0.136198				
Total					

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e

Land Use	Mgal	MT/yr		
Other Asphalt Surfaces	0 / 0			
Other Non-Asphalt Surfaces	0 / 0			
Parking Lot	0 / 0			
Strip Mall	0.177774 / 0.12789			
Total				

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				
Unmitigated				

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	0				
Strip Mall	3.15				
Total					

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0				
Other Non-Asphalt Surfaces	0				
Parking Lot	0				
Strip Mall	3.15				
Total					

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North 3K Building - Operational

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	0.45	Acre	0.45	19,602.00	0
Other Non-Asphalt Surfaces	0.16	Acre	0.16	6,969.60	0
Parking Lot	51.00	Space	0.46	20,400.00	0
Strip Mall	3.00	1000sqft	0.07	3,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Used worst-case of FF Rest w drive through. Traffic study and ITE 10th edition. 3 mile service area. Trip % from TIS

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on truck trips

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.13	4.0000e-004
tblFleetMix	LDA	0.51	0.62
tblFleetMix	LDT1	0.03	0.04
tblFleetMix	LDT2	0.17	0.21
tblFleetMix	LHD2	3.9290e-003	2.6700e-004
tblFleetMix	MHD	0.03	1.2010e-003
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblTripsAndVMT	WorkerTripNumber	4.00	0.00
tblVehicleTrips	CC_TL	7.30	3.00
tblVehicleTrips	DV_TP	40.00	11.00
tblVehicleTrips	PB_TP	15.00	25.00
tblVehicleTrips	PR_TP	45.00	64.00
tblVehicleTrips	ST_TR	42.04	616.12
tblVehicleTrips	SU_TR	20.43	472.58
tblVehicleTrips	WD_TR	44.32	470.95

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0982	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	9.5000e-004	8.6200e-003	7.2400e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						

Mobile	1.6592	2.1734	14.9472	0.0385	4.6543	0.0353	4.6896	1.2386	0.0327	1.2713						
Total	**1.7583**	**2.1820**	**14.9600**	**0.0386**	**4.6543**	**0.0359**	**4.6903**	**1.2386**	**0.0333**	**1.2720**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0981	5.0000e-005	5.4900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Energy	9.5000e-004	8.6200e-003	7.2400e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						
Mobile	1.6592	2.1734	14.9472	0.0385	4.6543	0.0353	4.6896	1.2386	0.0327	1.2713						
Total	**1.7583**	**2.1820**	**14.9599**	**0.0386**	**4.6543**	**0.0359**	**4.6903**	**1.2386**	**0.0333**	**1.2720**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.6592	2.1734	14.9472	0.0385	4.6543	0.0353	4.6896	1.2386	0.0327	1.2713						
Unmitigated	1.6592	2.1734	14.9472	0.0385	4.6543	0.0353	4.6896	1.2386	0.0327	1.2713						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Strip Mall	1,412.85	1,848.36	1417.74	1,768,971	1,768,971
Total	1,412.85	1,848.36	1,417.74	1,768,971	1,768,971

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Strip Mall	9.50	3.00	7.30	16.60	64.40	19.00	64	11	25

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.505528	0.029619	0.172275	0.104063	0.012782	0.003929	0.033727	0.128026	0.002328	0.001354	0.004810	0.001048	0.000512
Other Non-Asphalt Surfaces	0.505528	0.029619	0.172275	0.104063	0.012782	0.003929	0.033727	0.128026	0.002328	0.001354	0.004810	0.001048	0.000512
Parking Lot	0.505528	0.029619	0.172275	0.104063	0.012782	0.003929	0.033727	0.128026	0.002328	0.001354	0.004810	0.001048	0.000512
Strip Mall	0.622590	0.036478	0.212168	0.104063	0.012782	0.000267	0.001201	0.000400	0.002328	0.001354	0.004810	0.001048	0.000512

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

Category	lb/day										lb/day					
NaturalGas Mitigated	9.5000e-004	8.6200e-003	7.2400e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						
NaturalGas Unmitigated	9.5000e-004	8.6200e-003	7.2400e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Strip Mall	87.9452	9.5000e-004	8.6200e-003	7.2400e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						
Total		**9.5000e-004**	**8.6200e-003**	**7.2400e-003**	**5.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**						

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						

Strip Mall	0.0879452	9.5000e-004	8.6200e-003	7.2400e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004						
Total		**9.5000e-004**	**8.6200e-003**	**7.2400e-003**	**5.0000e-005**		**6.6000e-004**	**6.6000e-004**		**6.6000e-004**	**6.6000e-004**						

6.0 Area Detail

6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0981	5.0000e-005	5.4900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Unmitigated	0.0982	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0168					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0808					0.0000	0.0000		0.0000	0.0000						

Landscaping	5.1000e-004	5.0000e-005	5.5600e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**0.0982**	**5.0000e-005**	**5.5600e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0168					0.0000	0.0000		0.0000	0.0000						
Consumer Products	0.0808					0.0000	0.0000		0.0000	0.0000						
Landscaping	5.0000e-004	5.0000e-005	5.4900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005						
Total	**0.0981**	**5.0000e-005**	**5.4900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**						

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

99 and North - HHD for Refuse collection

Fresno County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - HHD trucks from refuse only

Construction Phase -

Off-road Equipment - Ops only

Trips and VMT - Ops only

Vehicle Trips - 20 mile trip length. 52 weeks x 4 service trips per week x 2 (roundtrip) = 416 trips divided by 260 days = 1.6 trip rate

Fleet Mix - All HHD

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.12	1.00
tblFleetMix	LDA	0.48	0.00

tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	4.9970e-003	0.00
tblFleetMix	MCY	5.2610e-003	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	6.6700e-004	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	OBUS	2.3690e-003	0.00
tblFleetMix	SBUS	1.1150e-003	0.00
tblFleetMix	UBUS	1.6750e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblVehicleTrips	CC_TL	7.30	20.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	1.60

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	1.6500e-003	0.0583	7.8300e-003	1.7000e-004	3.5500e-003	2.0000e-004	3.7500e-003	9.8000e-004	1.9000e-004	1.1700e-003						

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**1.6500e-003**	**0.0583**	**7.8400e-003**	**1.7000e-004**	**3.5500e-003**	**2.0000e-004**	**3.7500e-003**	**9.8000e-004**	**1.9000e-004**	**1.1700e-003**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	1.6500e-003	0.0583	7.8300e-003	1.7000e-004	3.5500e-003	2.0000e-004	3.7500e-003	9.8000e-004	1.9000e-004	1.1700e-003						
Waste						0.0000	0.0000		0.0000	0.0000						
Water						0.0000	0.0000		0.0000	0.0000						
Total	**1.6500e-003**	**0.0583**	**7.8400e-003**	**1.7000e-004**	**3.5500e-003**	**2.0000e-004**	**3.7500e-003**	**9.8000e-004**	**1.9000e-004**	**1.1700e-003**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Mitigated	1.6500e-003	0.0583	7.8300e-003	1.7000e-004	3.5500e-003	2.0000e-004	3.7500e-003	9.8000e-004	1.9000e-004	1.1700e-003						
Unmitigated	1.6500e-003	0.0583	7.8300e-003	1.7000e-004	3.5500e-003	2.0000e-004	3.7500e-003	9.8000e-004	1.9000e-004	1.1700e-003						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	1.60	0.00	0.00	8,320	8,320
Total	1.60	0.00	0.00	8,320	8,320

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	0.00	20.00	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000

99 and North - HHD for Refuse collection

Fresno County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	45
Climate Zone	3			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - HHD trucks from refuse only

Construction Phase -

Off-road Equipment - Ops only

Trips and VMT - Ops only

Vehicle Trips - 20 mile trip length. 52 weeks x 4 service trips per week x 2 (roundtrip) = 416 trips divided by 260 days = 1.6 trip rate

Fleet Mix - All HHD

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.12	1.00
tblFleetMix	LDA	0.48	0.00

tblFleetMix	LDT1	0.03	0.00
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	4.9970e-003	0.00
tblFleetMix	MCY	5.2610e-003	0.00
tblFleetMix	MDV	0.13	0.00
tblFleetMix	MH	6.6700e-004	0.00
tblFleetMix	MHD	0.03	0.00
tblFleetMix	OBUS	2.3690e-003	0.00
tblFleetMix	SBUS	1.1150e-003	0.00
tblFleetMix	UBUS	1.6750e-003	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblVehicleTrips	CC_TL	7.30	20.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	WD_TR	0.00	1.60

2.0 Emissions Summary

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0130	0.4505	0.0647	1.2600e-003	0.0280	1.5600e-003	0.0295	7.6700e-003	1.4900e-003	9.1600e-003						

Total	**0.0130**	**0.4505**	**0.0648**	**1.2600e-003**	**0.0280**	**1.5600e-003**	**0.0295**	**7.6700e-003**	**1.4900e-003**	**9.1600e-003**						

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						
Mobile	0.0130	0.4505	0.0647	1.2600e-003	0.0280	1.5600e-003	0.0295	7.6700e-003	1.4900e-003	9.1600e-003						
Total	**0.0130**	**0.4505**	**0.0648**	**1.2600e-003**	**0.0280**	**1.5600e-003**	**0.0295**	**7.6700e-003**	**1.4900e-003**	**9.1600e-003**						

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0130	0.4505	0.0647	1.2600e-003	0.0280	1.5600e-003	0.0295	7.6700e-003	1.4900e-003	9.1600e-003						
Unmitigated	0.0130	0.4505	0.0647	1.2600e-003	0.0280	1.5600e-003	0.0295	7.6700e-003	1.4900e-003	9.1600e-003						

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	1.60	0.00	0.00	8,320	8,320
Total	1.60	0.00	0.00	8,320	8,320

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	0.00	20.00	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000

REVISED FLEET MIXES

7-11 Project Fleet Mix

Land Use Assumptions

LandUseType	**SubType**	**Unit Amount**	**Size Metric**
Recreational	Conv. Mkt w/ gas pumps	12	pumps

Project Trip Generation

VehicleTripsLandUse SubType	**SizeMetric**	**WD_TR**	**ST_TR**	**SU_TR**	**Daily Avg**	**Pumps**	**Trip Gen**	**LHD2 Frac**	**LHD Trips**	**MHD Frac**	**MHD Trips**	**HHD Frac**	**HHD Trips**	**Total**
Fast Food Restaurant	1000sqft	205.36	204.47	166.88	199.74	12	2396.828571	0.004997	11.9770	0.032622	78.2	0.122881	294.5	
Total Trips							2396.828571		11.9770		78.2		294.5	
7-11 Estimated Trips by Vehicle Type									0.0000		2.0		2.0	
Adjusted Fleet Mix for Trucks									0.0000		0.000834		0.000834	0.001669
Default Fleet Mix									0.0050		0.032622		0.122881	0.160500
Difference to be allocated									0.004997		0.031788		0.122047	0.158831

	LDA	**LDT1**	**LDT2**	**Total**
Default Light Duty Fleet Mix	0.481390	0.032808	0.168621	0.682819
Revised Light Duty Fleet Mix	0.593367	0.040439	0.207844	0.841650
				0.158831

Default Fleet Mix

	LDA	**LDT1**	**LDT2**	**MDV**	**LHD1**	**LHD2**	**MHD**	**HHD**	**OBUS**	**UBUS**	**MCY**	**SBUS**	**MH**	
Default Fleet Mix	**0.481390**	**0.032808**	**0.168621**	0.127212	0.018382	**0.004997**	**0.032622**	**0.122881**	0.002369	0.001675	0.005261	0.001115	0.000670	1.000
Revised Fleet Mix	**0.593367**	**0.040439**	**0.207844**	0.127212	0.018382	**0.000000**	**0.000834**	**0.000834**	0.002369	0.001675	0.005261	0.001115	0.000670	1.000

Lifestyle Center Restaurant Truck Trips

Store	**sq Ft**	**# of Deliveries per Week**	**Semi (large)**	**MHD (Medium)**	**LHD Van/Car (small)**
Seven Eleven Store	12	7	7	7	
Totals	12	7	7	7	0
Deliveries per day		1.00	1.00	1.00	0.00
RT Trips/Day		2.00	2.00	2.00	0.00
Trips/pump	12	0.17	0.17	0.17	0.00
Truck Fleet Fraction	199.74	0.0008	0.0008	0.0008	0.0000

Panda Express Restaurant Project Fleet Mix

Land Use Assumptions

LandUseType	**SubType**	**Unit Amount**	**Size Metric**
Recreational	Fast Food Restaurant w Drive Thru	2.227	1000sqft

Project Trip Generation

VehicleTripsLandUse SubType	**SizeMetric**	**WD_TR**	**ST_TR**	**SU_TR**	**Daily Avg**	**LU SF x1,000**	**Trip Gen**	**LHD2 Frac**	**LHD Trips**	**MHD Frac**	**MHD Trips**	**HHD Frac**	**HHD Trips**	**Total**
Fast Food Restaurant	1000sqft	346.23	722.03	542.72	427.99	2.227	953.1241857	0.004997	4.7628	0.032622	31.1	0.122881	117.1	
Total Trips							953.1241857		4.7628		31.1		117.1	
Panda Express Estimated Trips by Vehicle Type									0.1636		0.9		0.2	
Adjusted Fleet Mix for Trucks									0.0002		0.000944		0.000257	0.001373
2020 Default Fleet Mix									0.0050		0.032622		0.122881	0.160500
Difference to be allocated									0.004825		0.031678		0.122624	0.159127

	LDA	**LDT1**	**LDT2**	**Total**
2020 Default Light Duty Fleet Mix	0.481390	0.032808	0.168621	0.682819
Revised Light Duty Fleet Mix	0.593575	0.040454	0.207917	0.841946
				0.159127

2020 Default Fleet Mix

	LDA	**LDT1**	**LDT2**	**MDV**	**LHD1**	**LHD2**	**MHD**	**HHD**	**OBUS**	**UBUS**	**MCY**	**SBUS**	**MH**	
2020 Default Fleet Mix	**0.481390**	**0.032808**	**0.168621**	0.127212	0.018382	**0.004997**	**0.032622**	**0.122881**	0.002369	0.001675	0.005261	0.001115	0.000670	1.000
Revised Fleet Mix	**0.593575**	**0.040454**	**0.207917**	0.127212	0.018382	**0.000172**	**0.000944**	**0.000257**	0.002369	0.001675	0.005261	0.001115	0.000670	1.000

Lifestyle Center Restaurant Truck Trips

Store	**sq Ft**	**# of Deliveries per Week**	**Semi (large)**	**MHD (Medium)**	**LHD Van/Car (small)**
Five Guys Burgers & Fries	2400	7	2	5	
Panera Bread	4205	5	1	4	1
Subway	1175	3		2	1
Totals	7780	15	3	11	2
Deliveries per day		2.14	0.43	1.57	0.29
RT Trips/Day		4.29	0.86	3.14	0.57
Trips/1,000 sf	7.78	0.55	0.11	0.40	0.07
Truck Fleet Fraction	427.99	0.0013	0.0003	0.0009	0.0002

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Fast Food Restaurant Project Fleet Mix

Land Use Assumptions

LandUseType	**SubType**	**Unit Amount**	**Size Metric**
Recreational	Fast Food Restaurant w Drive Thru	3	1000sqft

Project Trip Generation

VehicleTripsLandUse SubType	**SizeMetric**	**WD_TR**	**ST_TR**	**SU_TR**	**Daily Avg**	**LU SF x1,000**	**Trip Gen**	**LHD2 Frac**	**LHD Trips**	**MHD Frac**	**MHD Trips**	**HHD Frac**	**HHD Trips**	**Total**
Fast Food Restaurant	1000sqft	346.23	722.03	542.72	427.99	3	1283.957143	0.003929	5.0447	0.033727	43.3	0.128026	164.4	
Total Trips							1283.957143		5.0447		43.3		164.4	

	LHD	MHD	HHD	Total
Fast Food Restaurant Estimated Trips by Vehicle Type	0.3427	1.5	0.5	
Adjusted Fleet Mix for Trucks	0.0003	0.001201	0.000400	0.001869
2025 Default Fleet Mix	0.0039	0.033727	0.128026	0.165682
Difference to be allocated	0.003662	0.032526	0.127626	0.163813

	LDA	**LDT1**	**LDT2**	**Total**
2025 Default Light Duty Fleet Mix	0.505528	0.029619	0.172275	0.707422
Revised Light Duty Fleet Mix	0.622590	0.036478	0.212168	0.871235
				0.163813

2025 Default Fleet Mix

	LDA	**LDT1**	**LDT2**	**MDV**	**LHD1**	**LHD2**	**MHD**	**HHD**	**OBUS**	**UBUS**	**MCY**	**SBUS**	**MH**	
2025 Default Fleet Mix	**0.505528**	**0.029619**	**0.172275**	0.104063	0.012782	**0.003929**	**0.033727**	**0.128026**	0.002328	0.001354	0.004810	0.001048	0.000512	1.000
Revised Fleet Mix	**0.622590**	**0.036478**	**0.212168**	0.104063	0.012782	**0.000267**	**0.001201**	**0.000400**	0.002328	0.001354	0.004810	0.001048	0.000512	1.000

Lifestyle Center Restaurant Truck Trips

Store	**sq Ft**	**# of Deliveries per Week**	**Semi (large)**	**MHD (Medium)**	**LHD Van/Car (small)**
Five Guys Burgers & Fries	2400	7	2	5	
Starbucks I	1500	7		7	
Starbucks II	2025	9		7	2
Rubio's Fresh Mexican Grill	2310	7	4	2	1
Yogurtland	1390	3	2		1
Panera Bread	4205	5	1	4	1
Subway	1175	3		2	1
Totals	15005	41	9	27	6
Deliveries per day		5.86	1.29	3.86	0.86
RT Trips/Day		11.71	2.57	7.71	1.71
Trips/1,000 sf	15.005	0.78	0.17	0.51	0.11

Truck Fleet Fraction	427.99	0.0018	0.0004	0.0012	0.0003

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Fast Food Restaurant Project Fleet Mix

Land Use Assumptions

LandUseType	SubType	Unit Amount	Size Metric
Recreational	Fast Food Restaurant w Drive Thru	5	1000sqft

Project Trip Generation

VehicleTripsLandUse SubType	SizeMetric	WD_TR	ST_TR	SU_TR	Daily Avg	LU SF x1,000	Trip Gen	LHD2 Frac	LHD Trips	MHD Frac	MHD Trips	HHD Frac	HHD Trips	Total
Fast Food Restaurant	1000sqft	346.23	722.03	542.72	427.99	5	2139.928571	0.004502	9.6340	0.033398	71.5	0.126328	270.3	
Total Trips							2139.928571		9.6340		71.5		270.3	
Panda Express Estimated Trips by Vehicle Type									0.5712		2.6		0.9	
Adjusted Fleet Mix for Trucks									0.0003		0.001201		0.000400	0.001869
Default Fleet Mix									0.0045		0.033398		0.126328	0.164228
Difference to be allocated									0.004235		0.032197		0.125928	0.162359

	LDA	LDT1	LDT2	Total
2022 Default Light Duty Fleet Mix	0.492212	0.031147	0.16982	0.693179
Revised Light Duty Fleet Mix	0.607500	0.038442	0.209596	0.855538
				0.162359

2022 Default Fleet Mix

	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
2022 Default Fleet Mix	**0.492212**	**0.031147**	**0.169820**	0.116157	0.015815	**0.004502**	**0.033398**	**0.126328**	0.002363	0.001519	0.005062	0.001083	0.000594	1.000
Revised Fleet Mix	**0.607500**	**0.038442**	**0.209596**	0.116157	0.015815	**0.000267**	**0.001201**	**0.000400**	0.002363	0.001519	0.005062	0.001083	0.000594	1.000

Lifestyle Center Restaurant Truck Trips

Store	sq Ft	# of Deliveries per Week	Semi (large)	MHD (Medium)	LHD Van/Car (small)
Five Guys Burgers & Fries	2400	7	2	5	
Starbucks I	1500	7		7	
Starbucks II	2025	9		7	2
Rubio's Fresh Mexican Grill	2310	7	4	2	1
Yogurtland	1390	3	2		1
Panera Bread	4205	5	1	4	1
Subway	1175	3		2	1
Totals	15005	41	9	27	6
Deliveries per day		5.86	1.29	3.86	0.86
RT Trips/Day		11.71	2.57	7.71	1.71
Trips/1,000 sf	15.005	0.78	0.17	0.51	0.11
Truck Fleet Fraction	427.99	0.0018	0.0004	0.0012	0.0003

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DISTRICT PRIORITIZATION

Health Risk Screening Analysis

Name	Prioritization Calculator				
Applicability	Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in grey areas.				
Author or updater	Matthew Cegielski	*Last Update*	August 20, 2018		
Facility: ID#: Project #: Unit and Process#	Convenience Market with Gas Station				
Operating Hours hr/yr	8,760.00				

Receptor Proximity and Proximity Factors		Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100	1.000	1.30E+00	2.94E-02	2.58E-01	1.30E+00
100≤R<250	0.250	3.24E-01	7.36E-03	6.44E-02	3.24E-01
250≤R<500	0.040	5.18E-02	1.18E-03	1.03E-02	5.18E-02
500≤R<1000	0.011	1.43E-02	3.24E-04	2.83E-03	1.43E-02
1000≤R<1500	0.003	3.89E-03	8.83E-05	7.73E-04	3.89E-03
1500≤R<2000	0.002	2.59E-03	5.88E-05	5.15E-04	2.59E-03
2000<R	0.001	1.30E-03	2.94E-05	2.58E-04	1.30E-03

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Convenience Market with Gas Station

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Substance	CAS#	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
Benzene	71432	3.99E+00	4.55E-03	4.55E-04	8.90E-01	2.28E-02	2.53E-01
Toluene	108883	1.06E+02	1.21E-01	1.21E-02	0.00E+00	6.07E-03	4.92E-03
Xylene	1330207	3.19E+01	3.00E-03	3.64E-03	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust, particulate matter (Diesel PM)	9901	1.76E-01	5.00E-03	2.00E-05	4.06E-01	6.01E-04	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				Totals	1.30E+00	2.94E-02	2.58E-01

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Diesel engine exhaust, particulate matter (Diesel PM)	9901

Unit and Process#	Panda Express			
Operating Hours hr/yr	4,380.00			
Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score
0< R<100 1.000	4.06E-01	1.20E-03	0.00E+00	4.06E-01
100≤R<250 0.250	1.01E-01	3.01E-04	0.00E+00	1.01E-01
250≤R<500 0.040	1.62E-02	4.81E-05	0.00E+00	1.62E-02
500≤R<1000 0.011	4.46E-03	1.32E-05	0.00E+00	4.46E-03
1000≤R<1500 0.003	1.22E-03	3.61E-06	0.00E+00	1.22E-03
1500≤R<2000 0.002	8.11E-04	2.41E-06	0.00E+00	8.11E-04
2000<R 0.001	4.06E-04	1.20E-06	0.00E+00	4.06E-04

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Zinc	7440666

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

Panda Express Substance	CAS#	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
PAHs	1151	2.55E-03	1.27E-03	5.82E-07	0.00E+00	0.00E+00	0.00E+00
Napthalene	91203	1.50E-01	7.58E-02	3.42E-05	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust, particulate matter (Diesel PM)	9901	1.76E-01	5.00E-03	4.01E-05	4.06E-01	1.20E-03	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				Totals	4.06E-01	1.20E-03	0.00E+00

Unit and Process#	Unknown Restaurant 1				
Operating Hours hr/yr	4,380.00				
Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score	Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.
0< R<100 1.000	4.06E-01	1.20E-03	0.00E+00	4.06E-01	
100≤R<250 0.250	1.01E-01	3.01E-04	0.00E+00	1.01E-01	
250≤R<500 0.040	1.62E-02	4.81E-05	0.00E+00	1.62E-02	
500≤R<1000 0.011	4.46E-03	1.32E-05	0.00E+00	4.46E-03	
1000≤R<1500 0.003	1.22E-03	3.61E-06	0.00E+00	1.22E-03	
1500≤R<2000 0.002	8.11E-04	2.41E-06	0.00E+00	8.11E-04	
2000<R 0.001	4.06E-04	1.20E-06	0.00E+00	4.06E-04	

Unknown Restaurant 1	Enter the unit's CAS# of the substances emitted and their amounts.				Prioritzation score for each substance generated below. Totals on last row.		
Substance	CAS#	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
PAHs	1151	7.57E-04	3.78E-04	1.73E-07	0.00E+00	0.00E+00	0.00E+00
Napthalene	91203	1.70E-01	8.50E-02	3.88E-05	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust, particulate matter (Diesel PM)	9901	1.76E-01	5.00E-03	4.01E-05	4.06E-01	1.20E-03	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				Totals	4.06E-01	1.20E-03	0.00E+00

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Hexane	110543

Unit and Process#	Unknown Restaurant 2				
Operating Hours hr/yr	4,380.00				
Receptor Proximity and Proximity Factors	Cancer Score	Chronic Score	Acute Score	Max Score	Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.
0< R<100 1.000	4.06E-01	1.20E-03	0.00E+00	4.06E-01	
100≤R<250 0.250	1.01E-01	3.01E-04	0.00E+00	1.01E-01	
250≤R<500 0.040	1.62E-02	4.81E-05	0.00E+00	1.62E-02	
500≤R<1000 0.011	4.46E-03	1.32E-05	0.00E+00	4.46E-03	
1000≤R<1500 0.003	1.22E-03	3.61E-06	0.00E+00	1.22E-03	
1500≤R<2000 0.002	8.11E-04	2.41E-06	0.00E+00	8.11E-04	
2000<R 0.001	4.06E-04	1.20E-06	0.00E+00	4.06E-04	

Unknown Restaurant 2	Enter the unit's CAS# of the substances emitted and their amounts.				Prioritization score for each substance generated below. Totals on last row.		
Substance	CAS#	Annual Emissions (lbs/yr)	Maximum Hourly (lbs/hr)	Average Hourly (lbs/hr)	Cancer	Chronic	Acute
PAHs	1151	7.57E-04	3.78E-04	1.73E-07	0.00E+00	0.00E+00	0.00E+00
Napthalene	91203	1.70E-01	8.50E-02	3.88E-05	0.00E+00	0.00E+00	0.00E+00
Diesel engine exhaust, particulate matter (Diesel PM)	9901	1.76E-01	5.00E-03	4.01E-05	4.06E-01	1.20E-03	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				0.00E+00	0.00E+00	0.00E+00	0.00E+00
				Totals	4.06E-01	1.20E-03	0.00E+00

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

Substance	CAS# Finder
Barium	7440393

Receptor Proximity and Proximity Factors		Convenience Market with Gas Station Max Score	Panda Express Max Score	Unknown Restaurant 1 Max Score	Unknown Restaurant 2 Max Score	Total Max Score
0< R<100	**1.000**	1.30E+00	4.06E-01	4.06E-01	4.06E-01	2.51E+00
100≤R<250	**0.250**	3.24E-01	1.01E-01	1.01E-01	1.01E-01	6.28E-01
250≤R<500	**0.040**	5.18E-02	1.62E-02	1.62E-02	1.62E-02	1.01E-01
500≤R<1000	**0.011**	1.43E-02	4.46E-03	4.46E-03	4.46E-03	2.76E-02
1000≤R<1500	**0.003**	3.89E-03	1.22E-03	1.22E-03	1.22E-03	7.54E-03
1500≤R<2000	**0.002**	2.59E-03	8.11E-04	8.11E-04	8.11E-04	5.03E-03
2000<R	**0.001**	1.30E-03	4.06E-04	4.06E-04	4.06E-04	2.51E-03

GASOLINE SPECIATION

VOC Emissions Calculations			Gallons /	Lbs/ Yr			
Scenario	Type	Description	Year	Loading	Breathing	Refueling	Spillage
1	Aboveground	No Controls	0	0.00	0.00	0.00	0.00
2	Aboveground	Pahse I Only	0	0.00	0.00	0.00	0.00
3A	Aboveground	Phase I & II w/o Vent Values (90% Controls Breathing & Refueling)	0	0.00	0.00	0.00	0.00
3B	Aboveground	Phase I & II w/ Vent Values (90% Controls Breathing & Refueling)	0	0.00	0.00	0.00	0.00
4	Underground	No Controls	0	0.00	0.00	0.00	0.00
5A	Underground	Phase I Only	0	0.00	0.00	0.00	0.00
5B	Underground	Phase I w/ Vent Values	0	0.00	0.00	0.00	0.00
6A	Underground	Phase I & II w/o Vent Values (90% Controls Breathing & Refueling)		0.00	0.00	0.00	0.00
6B	Underground	Phase I & II w/ Vent Values (90% Controls Breathing & Refueling)	1,400,000	117.60	35.00	588.00	588.00

Toxic Emissions		Loading (Lb/Yr)			Breathing (Lb/Yr)			Refueling (Lb/Yr)			Spillage (Lb/Yr)		
Scenario	Type	Benzene	Toluene	Xylene	Benzene	Toluene	Xylene	Benzene	Toluene	Xylene	Benzene	Toluene	Xylene
1	Aboveground	0	0	0	0	0	0	0	0	0	0	0	0
2	Aboveground	0	0	0	0	0	0	0	0	0	0	0	0
3A	Aboveground	0	0	0	0	0	0	0	0	0	0	0	0
3B	Aboveground	0	0	0	0	0	0	0	0	0	0	0	0
4	Underground	0	0	0	0	0	0	0	0	0	0	0	0
5A	Underground	0	0	0	0	0	0	0	0	0	0	0	0
5B	Underground	0	0	0	0	0	0	0	0	0	0	0	0
6A	Underground	0	0	0	0	0	0	0	0	0	0	0	0
6B	Underground	0.3528	9.408	2.8224	0.105	2.8	0.84	1.764	47.04	14.112	1.764	47.04	14.112

File No. 210.413

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
NOTICE OF REQUIREMENTS

PUBLIC AGENCY

JARRED OLSEN
DEVELOPMENT SERVICES/PLANNING
CITY OF FRESNO
2600 FRESNO STREET, THIRD FLOOR
FRESNO, CA 93721

DEVELOPER

GEORGE GRIM, CENTERLINE DESIGN LLC.
1508 TOLLHOUSE RD., SUITE C
CLOVIS, CA 93611

PROJECT NO: **2018-02233**

ADDRESS: **2999 S ORANGE AVE.**

APN: **487-140-32**

SENT: 10/30/18

Drainage Area(s)	Preliminary Fee(s)	Development Review Service Charge(s)	Fee(s)	
AW1	$0.00	NOR Review	$128.00	To be paid prior to release of District comments to Public Agency and Developer.
		Grading Plan Review	$653.00	Amount to be submitted with first grading plan submittal.
	Total Drainage Fee: $0.00	**Total Service Charge:**	**$781.00**	

The proposed development will generate storm runoff which produces potentially significant environmental impacts and which must be properly discharged and mitigated pursuant to the California Environmental Quality Act and the National Environmental Policy Act. The District in cooperation with the City and County has developed and adopted the Storm Drainage and Flood Control Master Plan. Compliance with and implementation of this Master Plan by this development project will satisfy the drainage related CEQA/NEPA impact of the project mitigation requirements.

Pursuant to the District's Development Review Fee Policy, the subject project shall pay review fees for issuance of this Notice of Requirements (NOR) and any plan submittals requiring the District's reviews. The NOR fee shall be paid to the District by Developer before the Notice of Requirement will be submitted to the City. The Grading Plan fee shall be paid upon first submittal. The Storm Drain Plan fee shall be paid prior to return/pick up of first submittal.

The proposed development shall pay drainage fees pursuant to the Drainage Fee Ordinance prior to issuance of a building permit at the rates in effect at the time of such issuance. The fee indicated above is valid through 2/28/19 based on the site plan submitted to the District on 10/18/18 Contact FMFCD for a revised fee in cases where changes are made in the proposed site plan which materially alter the proposed impervious area.

Considerations which may affect the fee obligation(s) or the timing or form of fee payment:

a.) Fees related to undeveloped or phased portions of the project may be deferrable.

b.) Fees may be calculated based on the actual percentage of runoff if different than that typical for the zone district under which the development is being undertaken and if permanent provisions are made to assure that the site remains in that configuration.

c.) Master Plan storm drainage facilities may be constructed, or required to be constructed in lieu of paying fees.

d.) The actual cost incurred in constructing Master Plan drainage system facilities is credited against the drainage fee obligation.

e.) When the actual costs incurred in constructing Master Plan facilities exceeds the drainage fee obligation, reimbursement will be made for the excess costs from future fees collected by the District from other development.

f.) Any request for a drainage fee refund requires the entitlement cancellation and a written request addressed to the General Manager of the District within 60 days from payment of the fee. A non refundable $300 Administration fee or 5% of the refund whichever is less will be retained without fee credit.

FR CUP No. 2018-02233

Approval of this development shall be conditioned upon compliance with these District Requirements.

1. _X_ a. Drainage from the site shall BE DIRECTED TO ORANGE AND/OR NORTH AVENUE.

___ b. Grading and drainage patterns shall be as identified on Exhibit No.

___ c. The grading and drainage patterns shown on the site plan conform to the adopted Storm Drainage and Flood Control Master Plan.

2. The proposed development shall construct and/or dedicate Storm Drainage and Flood Control Master Plan facilities located within the development or necessitated by any off-site improvements required by the approving agency:

___ Developer shall construct facilities as shown on Exhibit No. 1 as

_X_ None required.

3. The following final improvement plans and information shall be submitted to the District for review prior to final development approval:

_X_ Grading Plan

_X_ Street Plan

___ Storm Drain Plan

___ Water & Sewer Plan

___ Final Map

___ Drainage Report (to be submitted with tentative map)

___ Other

___ None Required

4. Availability of drainage facilities:

_X_ a. Permanent drainage service is available provided the developer can verify to the satisfaction of the City that runoff can be safely conveyed to the Master Plan inlet(s).

___ b. The construction of facilities required by Paragraph No. 2 hereof will provide permanent drainage service.

___ c. Permanent drainage service will not be available. The District recommends temporary facilities until permanent service is available.

___ d. See Exhibit No. 2.

5. The proposed development:

___ Appears to be located within a 100 year flood prone area as designated on the latest Flood Insurance Rate Maps available to the District, necessitating appropriate floodplain management action. (See attached Floodplain Policy.)

_X_ Does not appear to be located within a flood prone area.

6. ___ The subject site contains a portion of a canal or pipeline that is used to manage recharge, storm water, and/or flood flows. The existing capacity must be preserved as part of site development. Additionally, site development may not interfere with the ability to operate and maintain the canal or pipeline.

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FR CUP No. 2018-02233

7. The Federal Clean Water Act and the State General Permits for Storm Water Discharges Associated with Construction and Industrial Activities (State General Permits) require developers of construction projects disturbing one or more acres, and discharges associated with industrial activity not otherwise exempt from National Pollutant Discharge Elimination System (NPDES) permitting, to implement controls to reduce pollutants, prohibit the discharge of waters other than storm water to the municipal storm drain system, and meet water quality standards. These requirements apply both to pollutants generated during construction, and to those which may be generated by operations at the development after construction.

   a. State General Permit for Storm Water Discharges Associated with Construction Activities, effective July 1, 2010, as amended. A State General Construction Permit is required for all clearing, grading, and disturbances to the ground that result in soil disturbance of at least one acre (or less than one acre) if part of a larger common plan of development or sale). Permittees are required to: submit a Notice of Intent and Permit Registration Documents to be covered and must pay a permit fee to the State Water Resources Control Board (State Board), develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, and complete an annual certification of compliance.

   b. State General Permit for Storm Water Discharges Associated with Industrial Activities, April, 2014 (available at the District Office). A State General Industrial Permit is required for specific types of industries described in the NPDES regulations or by Standard Industrial Classification (SIC) code. The following categories of industries are generally required to secure an industrial permit: manufacturing; trucking; recycling; and waste and hazardous waste management. Specific exemptions exist for manufacturing activities which occur entirely indoors. Permittees are required to: submit a Notice of Intent to be covered and must pay a permit fee to the State Water Resources Control Board, develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, sample storm water runoff and test it for pollutant indicators, and annually submit a report to the State Board.

   c. The proposed development is encouraged to select and implement storm water quality controls recommended in the Fresno-Clovis Storm Water Quality Management Construction and Post-Construction Guidelines (available at the District Office) to meet the requirements of the State General Permits, eliminate the potential for non-storm water to enter the municipal storm drain system, and where possible minimize contact with materials which may contaminate storm water runoff.

8. A requirement of the District may be appealed by filing a written notice of appeal with the Secretary of the District within ten days of the date of this Notice of Requirements.

9. The District reserves the right to modify, reduce or add to these requirements, or revise fees, as necessary to accommodate changes made in the proposed development by the developer or requirements made by other agencies.

10. __X__ See Exhibit No. 2 for additional comments, recommendations and requirements.

Jason Clarke FOR
Debbie Campbell
Design Engineer

Gary Chapman
Gary W. Chapman
Project Engineer

CC:

NEIL ANGELILLO, KETTLEMAN 99 PL.
1155 W. SHAW AVE., SUITE 104
FRESNO, CA 93711

JOE PEHANICK, NORNGE, LLC
2200 HUNTINGTON DR., SUITE C
FAIRFIELD, CA 94533

FR CUP No. 2018-02233

OTHER REQUIREMENTS
EXHIBIT NO. 2

There is an existing twenty-foot (20') wide storm drain easement near the east property line of CUP 2018-02233. No encroachments into the easement shall be permitted including, but not limited to, foundations, roof overhangs, swimming pools, and trees.

In an effort to improve storm runoff quality, outdoor storage areas shall be constructed and maintained such that material that may generate contaminants will be prevented from contact with rainfall and runoff and thereby prevent the conveyance of contaminants in runoff into the storm drain system.

The District encourages, but does not require that roof drains from non-residential development be constructed such that they are directed onto and through a landscaped grassy swale area to filter out pollutants from roof runoff.

Runoff from areas where industrial activities, product, or merchandise come into contact with and may contaminate storm water must be treated before discharging it off-site or into a storm drain. Roofs covering such areas are recommended. Cleaning of such areas by sweeping instead of washing is to be required unless such wash water can be directed to the sanitary sewer system. Storm drains receiving untreated runoff from such areas shall not be connected to the District's system. Loading docks, depressed areas, and areas servicing or fueling vehicles are specifically subject to these requirements. The District's policy governing said industrial site NPDES program requirements is available on the District's website at: www.fresnofloodcontrol.org or contact the District's Environmental Department, Daniel Rourke, for further information regarding these policies related to industrial site requirements.

Development No. CUP 2018-02233

DPU Water

1. On-site water facilities shall remain private.
2. The water supply requirements for this project are as follows:
    a. The existing property is currently served with six 2-inch water meters.
    b. If the total domestic, commercial, industrial and irrigation water demands for the applicant's proposed project can be accommodated with the existing six 2-inch water meters, then the applicant shall not be required to pay a Water Capacity Fee Charge.
    c. If the total domestic, commercial, industrial and irrigation water demands for the applicant's proposed project cannot be accommodated with the six 2-inch water meters, and an additional water meter or a larger water meter is required, then the applicant shall be required to pay a Water Capacity Fee Charge.
    d. If a larger water meter or fire service is required to accommodate the new, larger water demands, then the Water Capacity Fee Charge shall be calculated by subtracting the Water Capacity Fee Charge associated with the existing water meter size from the Water Capacity Fee Charge associated with the larger water meter size required for the applicant's project. The Water Capacity Fee Charges for different meter sizes are published in the City's Master Fee Schedule.
    e. The City reserves the right to require an applicant to increase or decrease the size of a water meter for a project or a property to ensure that the meter is properly sized to accommodate fire protection requirements, and to allow for accurate volumetric flow measurements at low- and high-flow conditions.
    f. The Water Capacity Fee Charge for any new or expanded service connection shall be payable prior to the issuance of a building permit at the fee level in effect on the date such permit is issued.
3. The project applicant shall be required to pay all other water-related fees and charges in accordance with the City's Master Fee Schedule and Municipal Code.

DPU Sewer

The nearest sanitary sewer main to serve the proposed project is an 8-inch sewer main located in South Orange Avenue. Sanitary sewer facilities are available to provide service to the site subject to the following requirements:

1. Street easements and/or deeds shall be recorded prior to approval of improvement plans.
2. Installation of sewer house branch(s) shall be required.
3. Separate sewer house branches are required for each lot.
4. Connection to the existing 66-inch and 57-inch sewer trunk in E. North Avenue shall not be allowed.
5. Street work permit is required for any work in the Right-of-Way.
6. On-site sanitary sewer facilities shall be private.
7. A cross access agreement is required for sewer service(s) crossing parcels
8. Abandon any existing on-site private septic systems.
9. The Project Developer shall contact Wastewater Management Division/Environmental Services at (559) 621-5100 prior to pulling building permits regarding conditions of service for special users.

Sanitary Sewer Fees

The following Sewer Connection Charges are due and shall be paid for the Project:

1. Sewer Lateral Charge.
2. Sewer Oversize Area.
3. Sewer Facility Charge (Non-Residential)

4. Upon connection of this Project to the City Sewer System the owner shall be subject to payment of Sewer Facility charges per Fresno Municipal Code Sections 6-304 and 6-305. Sewer Facility Charges consist of two components, a Wastewater Facilities Charge and Trunk Sewer Charge where applicable.
5. Sewer Facility Charges are collected after occupancy on a monthly basis over time based on metered (water or sewer effluent) usage. The developer may contact the Department of Public Utilities/Wastewater-Environmental Control at (559) 621-5153 to receive an estimated cost of the Sewer Facility Charges applicable to the project (based on a constant sewer discharge and loading (Biochemical Oxygen Demand [BOD] and Total Suspended Solids [TSS] levels anticipated) at the current rates in effect, at that time, per Fresno's Master Fee Resolution. The developer shall provide data regarding estimated sewer discharge rates [flow] and loading [BOD/TSS levels] required for calculating the estimated charges.

Fresno County Department of Public Health

Recommended Conditions of Approval For Proposed Phase 1 Project:

1. Prior to issuance of building permits, the applicants will be required to submit complete food facility plans and specifications to the Fresno County Department of Public Health, Environmental Health Division, for review and approval. Contact the Consumer Food Protection Program at (559) 600-3357 for more information.
2. Prior to operation, the applicants shall apply for and obtain permits to operate a food facility from the Fresno County Department of Public Health, Environmental Health Division. A permit, once issued, is nontransferable. Contact the Consumer Food Protection Program at (559) 600-3357 for more information.
3. Should alcohol sales be proposed, the applicant(s) shall first obtain their license to sell alcoholic beverages. Contact the California Alcoholic Beverage Control Department at (559) 225-6334 for more information.
4. Facilities that use and/or store hazardous materials and/or hazardous wastes shall meet the requirements set forth in the California Health and Safety Code (HSC), Division 20, Chapter 6.95, and the California Code of Regulations (CCR), Title 22, Division 4.5. Your proposed business will handle hazardous materials and/or hazardous waste and will be required to submit a Hazardous Materials Business Plan pursuant to the HSC, Division 20, Chapter 6.95 (http://cers.calepa.ca.gov/) For more information please contact the local Certified Unified Program Agency (CUPA) at (559) 600-3271.
5. Prior to the issuance of building permits, the applicant shall submit three (3) sets of complete plans and specifications regarding the installation of any underground storage tanks to the Fresno County Department of Public Health, Environmental Health Division. Contact the Certified Unified Program Agency (CUPA), at (559) 600-3271 for more information.
6. Prior to operations, the fuel facility applicant shall apply for and secure a Permit to Operate an Underground Storage Tank System from the Fresno County Department of Public Health, Environmental Health Division. Contact the Certified Unified Program Agency at (559) 600-3271 for more information.
7. The proposed construction project has the potential to expose nearby residents to elevated noise levels. Consideration should be given to your City’s municipal code.

Comments/Concerns:

1. Since specific retail/commercial tenants for this application have not been identified, the full range of ‘IH’ zoning uses for Phase 2 must be considered. The potential adverse impacts could include (but are not limited to) storage of hazardous materials and/or wastes, medical waste, solid waste, water quality degradation, excessive noise, and odors.

Recommended Conditions of Approval for Retail Uses:

1. If retail food establishments are proposed, then prior to issuance of building permits. The tenant shall submit complete food facility plans and specifications to the Fresno County Department of Public Health, Environmental Health Division, for review and approval. Prior to operation, the applicant(s) shall apply for and obtain a permit to operate a food facility from the Fresno County Department of Public Health, Environmental Health Division. A permit, once issued, is nontransferable. Contact the Consumer Food Protection Program at (559) 600-3357 for more information.
2. Prior to operation, future tenants may be required to apply for and obtain a license to sell alcoholic beverages. Contact the California Alcoholic Beverage Control Department at (559) 225-6334 for more information.
3. If the applicant(s) propose to use and/or store hazardous materials and/or hazardous wastes, they shall meet the requirements set forth in the California Health and Safety Code (HSC), Division 20, Chapter 6.95, and the California Code of Regulations (CCR), Title 22, Division 4.5. Any business that handles a hazardous material or hazardous waste may be required to submit a Hazardous Materials Business Plan.

Appendix B

Energy Calculations

On-road Mobile (Operational) Energy Usage

Note: For the sake of simplicity, it was assumed that passenger vehicles, light duty trucks, motorcycles, and mobile homes use gasoline, and all medium-duty trucks, heavy-duty trucks, and buses use diesel fuel.

Site preparation, and grading energy were used as the basis of this calculation.

Unmitigated:

Step 1: **Total Net Daily Trips (provided by Fehr & Peers)**

7,965

Trip Length (miles) (provided by CalEEMod)

C-W	*C-C*	*C-NW*	
9.5	3	7.3	

Trip %

C-W	*C-C*	*C-NW*	
2.20%	78.80%	19.00%	Fast Food , Convenience Market w/ Gas (6,326 daily trips)
16.60%	64.40%	19.00%	Strip Mall (1,639 daily trips)
5.16%	75.84%	19.00%	These are weighted averages of the above land uses based on the trip generation

Average Trip Length (weighted average)

4.1526

Therefore:

Average Daily VMT:

33,076

Step 2: Given:

Fleet Mix (provided by CalEEMod v2016.3.2)

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH	
59.3%	4.0%	20.8%	12.7%	1.8%	0.0%	0.0%	0.0%	0.2%	0.2%	0.5%	0.1%	0.0%	Fast Food , Convenience Market w/ Gas (6,326 daily trips)
62.3%	3.6%	21.2%	10.4%	1.3%	0.0%	0.1%	0.0%	0.2%	0.1%	0.5%	0.1%	0.0%	Strip Mall (1,639 daily trips)
59.9%	3.9%	20.9%	12.2%	1.7%	0.0%	0.0%	0.0%	0.2%	0.2%	0.5%	0.1%	0.0%	These are weighted averages of the above land uses based on the trip generation

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020

LDA	LDT1	LDT2	MDV	MCY	MH	OBUS
29.6	24.46	21.75	15.67	37.84	6.56	6.49

Diesel MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020

LHD1	LHD2	MHD	HHD	UBUS	SBUS
17.22	15.55	8.05	5.47	4.65	7.22

Therefore:

Weighted Average MPG Factors

Gasoline: **26.0** Diesel: **15.5**

Step 3: **Therefore:**

1,242 daily gallons of gasoline **47 daily gallons of diesel**

or

453,189	**annual gallons of gasoline**	**17,118**	**annual gallons of diesel**

On-road Mobile (Construction) Energy Usage - Site Preparation

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

48

Worker Trip Length (miles) (provided by CalEEMod)

10.8

Therefore:

Average Worker Daily VMT:

518

Step 2: Given:

Assumed Fleet Mix for Workers

LDA	LDT1	LDT2
0.3333333	0.3333333	0.3333333

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020

LDA	LDT1	LDT2
29.6	24.46	21.75

Therefore:

Weighted Average Worker MPG Factor

25.3

Step 3: **Therefore:**

20.5 Worker daily gallons of gasoline

Step 4: 6 **# of Days (see CalEEMod)**

Therefore:

Result: **123 Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Grading

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

48

Worker Trip Length (miles) (provided by CalEEMod)

10.8

Therefore:

Average Worker Daily VMT:

518

Step 2: Given:

Assumed Fleet Mix for Workers

LDA	**LDT1**	**LDT2**
0.3333333	0.3333333	0.3333333

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020

LDA	**LDT1**	**LDT2**
29.6	24.46	21.75

Therefore:

Weighted Average Worker MPG Factor

25.3

Step 3: **Therefore:**

20.5 Worker daily gallons of gasoline

Step 4: 12 **# of Days (see CalEEMod)**

Therefore:

Result: **246** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Building Construction

Site preparation, and grading energy were used as the basis of this calculation.

Step 1:

Total Daily Worker Trips (provided by CalEEMod)	Total Daily Vendor Trips (provided by CalEEMod)	Total Daily Hauler Trips (provided by CalEEMod)
145	63	0

Worker Trip Length (miles) (provided by CalEEMod)	Vendor Trip Length (miles) (provided by CalEEMod)	Hauling Trip Length (miles) (provided by CalEEMod)
10.8	7.3	0

Therefore:

Average Worker Daily VMT:	Average Vendor Daily VMT:	Average Hauling Daily VMT:
1,566.00	**460**	-

Step 2: Given:

Assumed Fleet Mix for Workers

LDA	LDT1	LDT2
0.33333333	0.333333	0.333333

Assumed Fleet Mix for Vendors

MHD	HHD
0.5	0.5

And:

MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020

Gasoline:

LDA	LDT1	LDT2
29.6	24.46	21.75

Diesel:

MHD	HHD
8.05	5.47

Therefore:

Weighted Average Worker (Gasoline) MPG Factor	Weighted Average Vendor (Diesel) MPG Factor	Weighted Average Hauling MPG Factor
25.3	**6.8**	**0.0**

Step 3: **Therefore:**

62 **Worker daily gallons of gasoline**

Therefore:

68 **Vendor daily gallons of diesel**

Step 4: 600 **# of Days (see CalEEMod)**

Therefore:

37,182 **Total gallons of gasoline**

Therefore:

40,820 **Total gallons of diesel**

On-road Mobile (Construction) Energy Usage - Paving

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

75

Worker Trip Length (miles) (provided by CalEEMod)

10.8

Therefore:

Average Worker Daily VMT:

810

Step 2: Given:

Assumed Fleet Mix for Workers

LDA	LDT1	LDT2
0.3333333	0.3333333	0.3333333

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020

LDA	LDT1	LDT2
29.6	24.46	21.75

Therefore:

Weighted Average Worker MPG Factor

25.3

Step 3: **Therefore:**

32.1 Worker daily gallons of gasoline

Step 4: 30 **# of Days (see CalEEMod)**

Therefore:

Result: **962** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Architectural Coating

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

28

Worker Trip Length (miles) (provided by CalEEMod)

10.8

Therefore:

Average Worker Daily VMT:

302

Step 2: Given:

Assumed Fleet Mix for Workers

LDA	LDT1	LDT2
0.3333333	0.3333333	0.3333333

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020

LDA	LDT1	LDT2
29.6	24.46	21.75

Therefore:

Weighted Average Worker MPG Factor

25.3

Step 3: **Therefore:**

12.0 Worker daily gallons of gasoline

Step 4: 30 **# of Days (see CalEEMod)**

Therefore:

Result: **359** **Total gallons of gasoline**

Appendix C

Traffic Impact Analysis

Draft Traffic Impact Analysis

Commercial Development

At the Northeast Corner of
North Avenue and Orange Avenue

In the City of Fresno, CA

Prepared For:

True North Properties
1155 W. Shaw Ave., Ste. 104
Fresno, CA 93711

January 12, 2018

Project No.: 004-051

JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning, & Parking Solutions

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Phone: (559) 570-8991
www.JLBtraffic.com

JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning, & Parking Solutions

Draft Traffic Impact Analysis

Commercial Development at the Northeast Corner of North Avenue and Orange Avenue

In the City of Fresno, CA

January 12, 2018

This Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein, and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions, and decisions are based.

Prepared By:

____

Jose Luis Benavides, P.E., T.E.

President

REGISTERED PROFESSIONAL ENGINEER
JOSE LUIS BENAVIDES
No.T 2328
Exp:06/30/19
TRAFFIC
STATE OF CALIFORNIA

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Traffic Engineering, Transportation Planning, & Parking Solutions

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Introduction and Summary

Introduction

This report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the Commercial Development (Project) located on a 3.92-acre property at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. The Project proposes to construct a gasoline/service station (12 fueling positions) with convenience market, a 1,998 square-foot coffee/donut shop with drive-through window, 2,992 square feet of fast-food restaurant without drive-through window, and 6,000 square feet of fast-food restaurant with drive-through window. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. Figure 1 shows the proposed Project relative to the surrounding roadway network.

The purpose of this TIA is to evaluate the potential traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the ongoing planning process. The study primarily focused on evaluating traffic conditions at study intersections that may be impacted by the proposed Project. The scope of work was prepared via consultation with the City of Fresno, County of Fresno, and Caltrans staff.

Summary

The potential impacts of the proposed Project were evaluated in accordance with the standards set forth by the level of service (LOS) policies of the City of Fresno, County of Fresno, and Caltrans.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during the AM and PM peak periods.

Existing plus Project Traffic Conditions

- A review of the existing Project site property lines and the Project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network.
- It is recommended that the Project implement Class II bike lanes along its frontage to North Avenue.
- At build-out, the Project is estimated to generate a maximum of 7,965 daily trips, 644 AM peak hour trips and 536 PM peak hour trips.
- Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
  - Add a southbound left-turn lane
  - Modify the southbound left-through lane to a through lane
  - Lengthen the short southbound flared right-turn lane to create a standard length right-turn lane
  - Signalize the intersection with protected left-turn phasing in the northbound and southbound directions and split phasing in the eastbound and westbound directions

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 28,023 daily trips, 3,648 AM peak hour trips, and 3,780 PM peak hour trips.
- Under this scenario, the intersections of North Avenue and Orange Avenue, North Avenue and State Route 99 SB Off-Ramp, and North Avenue and Cedar Avenue are projected to exceed their respective LOS threshold during one or both peak periods. To improve the LOS at each of the intersections projected to exceed its LOS threshold, it is recommended that the following improvements be implemented.
  - North Avenue and Orange Avenue
    - Implement the improvements per the approved City of Fresno Street improvement plans as prepared for the Amazon Project.
  - North Avenue and State Route 99 SB Off-Ramp
    - Add a second eastbound through lane
    - Add a westbound left-turn lane
    - Modify the westbound left-through lane to a through lane
    - Add southbound dual left-turn lanes
    - Modify the southbound left-through lane to a through lane
    - Lengthen the southbound flared right-turn lane to create a standard length right-turn lane
    - Signalize the intersection with protected left-turn phasing in all directions
  - North Avenue and State Route 99 NB On-Ramp (improvements needed to improve queuing)
    - Add eastbound dual left-turn lanes
    - Modify the eastbound left-through lane to a through lane
    - Add a second eastbound through lane
    - Add a second westbound through lane
    - Signalize the intersection with protected left-turn phasing in all directions
  - North Avenue and Cedar Avenue
    - Convert the eastbound right-turn lane to a through-right lane
    - Add a second westbound through lane
    - Add a second northbound left-turn lane
    - Modify the traffic signal to accommodate the added lane geometrics

Cumulative Year 2035 No Project Traffic Conditions

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
  - North Avenue at Chestnut Avenue
    - Add an eastbound left-turn lane
    - Change the eastbound left-through-right lane to a through lane
    - Add an eastbound right-turn lane
    - Add a westbound left-turn lane
    - Change the westbound left-through-right lane to a through lane
    - Add a westbound right-turn lane
    - Modify the traffic signal to accommodate the added lane geometrics

Cumulative Year 2035 plus Project Traffic Conditions

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the same improvements presented in the Cumulative Year 2035 No Project Traffic Conditions scenario be implemented.

Queuing Analysis

- It is recommended that the City consider left- and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project Equitable Fair Share Impact Analysis

- It is recommended that the Project contribute its equitable fair share as presented in Table IX.

TIA Scope of Work

The study focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On October 31, 2017, a draft scope of work for the preparation of a TIA for this Project was provided to the City of Fresno, County of Fresno, and Caltrans for their review and comment. On November 21, 2017, the County of Fresno requested that the TIA include in its analysis a Cumulative Year 2035 No Project scenario and that the intersection of North Avenue and Chestnut Avenue be added to the Scope of Work. On November 28, 2017, Caltrans approved the scope of work as presented. On December 8, 2017, the City of Fresno requested that the intersection of North Avenue and Cedar Avenue be added to the Scope of Work. Based on the comments received, this study includes the analysis of the additional scenario and intersections requested by the County of Fresno and City of Fresno. The TIA Draft Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.

Study Facilities

The study focused on evaluating traffic conditions at the existing study intersections that may potentially be impacted by the Project. Traffic counts were collected for the study intersections in April and May of 2016, with the exception of one count that was collected in December 2017. All counts were collected while schools in the vicinity of the proposed Project were in session. The traffic counts for the existing study facilities are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics, and traffic controls are illustrated in Figure 2.

Study Intersections

1. North Avenue / Orange Avenue
2. North Avenue / Project Driveway (limited right in, and right out access)
3. North Avenue / State Route 99 Southbound (SB) Off-Ramp
4. North Avenue / State Route 99 Northbound (NB) On-Ramp
5. North Avenue / Cedar Avenue
6. North Avenue / Chestnut Avenue
7. State Route 99 Northbound (NB) Off-Ramp / Cedar Avenue
8. Parkway Drive / Cedar Avenue

Study Scenarios

Existing Traffic Conditions

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in the base year 2017.

Existing plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project Traffic Conditions. The Existing plus Project traffic volumes were obtained by adding the 2017 Project Only trips to the previous scenario. The 2017 Project Only trips were based on the Project Select Zone, communication with Caltrans, City of Fresno and County of Fresno staff, the existing roadway network and engineering judgment. The Fresno COG Modeling and Select Zone are contained in Appendix C.

Near Term plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. The Near Term plus Project traffic volumes were obtained by adding the Near Term related trips to the Existing plus Project Traffic Conditions scenario.

Cumulative Year 2035 No Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2035 No Project Traffic Conditions. The Cumulative Year 2035 No Project traffic volumes were obtained from the Fresno COG traffic model runs (Base Year 2016 and Cumulative Year 2035 No Project) and existing 2017 traffic counts. Under this scenario, the increment method, as recommended by the Model Steering Committee was utilized to determine the Cumulative Year 2035 No Project traffic volumes. JLB's conservative approach of upward volume balancing the 2035 increment resulted in a higher projection of volumes at the intersections adjacent to the interchange of State Route 99 with North Avenue. The Fresno COG traffic model runs are contained in Appendix C. It should be noted that, by year 2035, it is assumed that the interchange of North Avenue and State Route 99 has been reconstructed and that this will result in changes in travel patterns and volumes.

Cumulative Year 2035 plus Project Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2035 plus Project Traffic Conditions. The Cumulative Year 2035 plus Project traffic volumes were obtained by adding the 2035 Project Only trips to the Cumulative Year 2035 No Project Traffic Conditions scenario.

Level of Service Analysis Methodology

Level of Service (LOS) is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F", with "A" indicating no congestion of any kind, and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The 2010 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board, and contains the specific criteria and methods to be used in assessing LOS. Synchro software was used to define LOS in this study. Details regarding these calculations are in Appendix D.

Criteria of Significance

The 2035 Fresno City General Plan has established various degrees of acceptable level of traffic congestion on its major streets and these are dependent on the four (4) Traffic Impact Zones (TIZ) within the City. The standard LOS threshold for TIZ I is LOS F, that for TIZ II is LOS E, that for TIZ III is LOS D and that for TIZ IV is LOS E. Additionally, the 2035 MEIR made findings of overriding consideration to allow a lower LOS threshold than that established by the underlying TIZ zone. For those cases in which a LOS criterion for a roadway segment differs from that of the underlying TIZ zone, such criteria are identified in the roadway description. All study facilities within the City of Fresno SOI fall within TIZ IV, and therefore LOS E is used to evaluate the potential significance of LOS impacts to intersections and segments within the City of Fresno's jurisdiction pursuant to the City of Fresno 2035 General Plan.

The County of Fresno has established LOS C as the acceptable level of traffic congestion on county roads and streets that fall entirely outside the Sphere of Influence (SOI) of a City. For those areas that fall within the SOI of a City, the LOS criteria of the City are the criteria of significance used in this report. LOS C is used to evaluate the potential significance of LOS impacts to Fresno County intersections and segments that fall outside the City of Fresno SOI. However, LOS D is used to evaluate the potential significance of LOS impacts to Fresno County intersections and segments within the SOI of the City of Fresno pursuant to the County of Fresno General Plan Policy TR-A.2.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and D on State highway facilities consistent with the Caltrans Guide for the Preparation of Traffic Impact Studies, dated December 2002. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. In this case, LOS D was utilized for study intersections or segments within Caltrans jurisdiction.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study. These default values ensured a consistent analysis of LOS among the various scenarios.

- Yellow time of 3.2 seconds for left-turn phases;
- Yellow time consistent with the California Manual of Uniform Traffic Control Devices (CA MUTCD) based on approach speeds;
- All-red clearance intervals of 1.0 second for all phases;
- Walk intervals of 7.0 seconds;
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added
- An average of 3 pedestrian calls per hour at signalized intersections;
- All new or modified signals utilize protected left-turn phasing;
- The heavy vehicle percentage factors utilized in this study varied from location to location based on actual count data. The heavy vehicle factors were three (3) percent of traffic entering or exiting the Project Driveway. These heavy vehicle factors for the study intersections can be found within the traffic count data and generally range from eight (8) to fifty (50) percent;
- At existing intersections, the observed approach Peak Hour Factor (PHF) is utilized in the Existing, Existing plus Project, and Near Term plus Project scenarios;
- A PHF of 0.92 (or the Existing PHF if higher) is utilized for all study intersections in both Cumulative Year 2035 scenarios; and
- New proposed study facilities utilize a PHF of 0.92 as recommended by the Highway Capacity Manual for rural and rural to urban transitions.

Existing Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project site are discussed below.

North Avenue is an existing east-west major arterial adjacent to the proposed Project. North Avenue extends through the southern part of the City of Fresno and is a four-lane divided arterial between State Route 41 and Orange Avenue and a two-lane divided arterial east of Orange Avenue in the vicinity of the Project. The 2035 General Plan Circulation Element designates North Avenue as a two-lane divided arterial west of Fig Avenue, a four-lane divided arterial between Fig Avenue and Clovis Avenue, and a two-lane collector east of Clovis Avenue.

Orange Avenue is an existing north-south two-lane undivided collector adjacent to the proposed Project. In this area, Orange Avenue extends from Golden State Boulevard to the north and beyond the City of Fresno limits to the south. The 2035 General Plan Circulation Element designates Orange Avenue as a two-lane undivided collector south of Golden State Boulevard.

Parkway Drive is a northwest-southeast (diagonal) two-lane industrial collector in the vicinity of the proposed Project. In this area, Parkway Drive exists between North Avenue and Cedar Avenue and provides a direct connection to State Route 99. The 2035 General Plan Circulation Element designates this segment of Parkway Drive as a one-lane (one-way) collector. However, Caltrans has prepared some options for the reconfiguration of the interchange of North Avenue at State Route 99 that will likely retain Parkway Drive as a two-lane two-way collector.

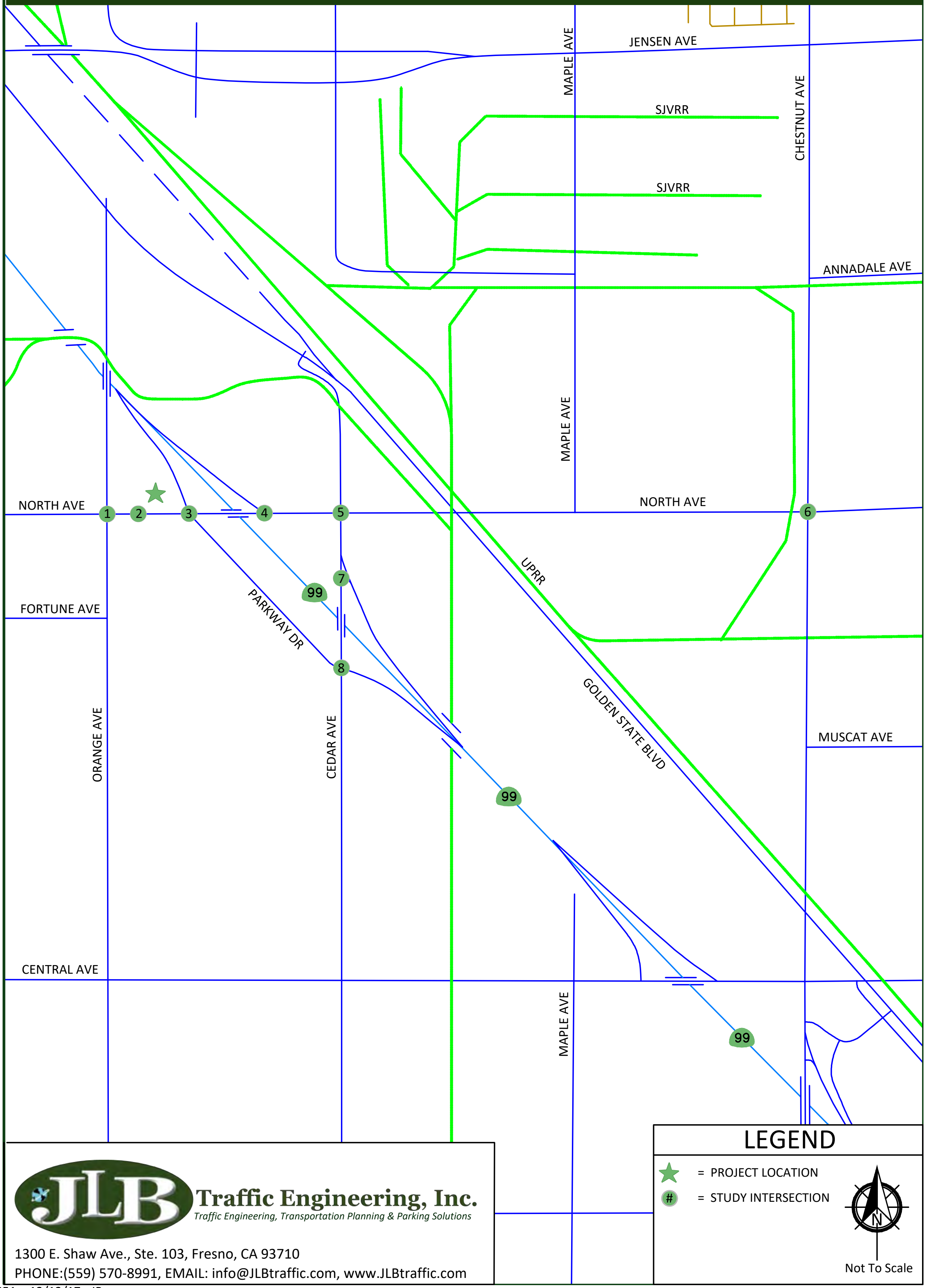
Cedar Avenue is an existing north-south two-lane undivided collector near the vicinity of the proposed Project. In this area, Cedar Avenue extends south of Golden State Boulevard beyond the City of Fresno limits. The 2035 Fresno General Plan Circulation Element designates Cedar Avenue as a two-lane collector south of Golden State Boulevard.

Chestnut Avenue is predominantly an existing four-lane arterial. South of North Avenue, Chestnut Avenue falls outside the Sphere of Influence of the City of Fresno. The County of Fresno General Plan Circulation element designates Chestnut Avenue as an arterial north of Golden State Boulevard and as a collector south of Golden State Boulevard.

State Route (SR) 99 is an existing six-lane freeway near the vicinity of the proposed Project. SR 99 traverses the City of Fresno in a northwest-southeast direction and serves as the principal connection to various metropolitan areas within the Central San Joaquin Valley.

City of Fresno - North and Orange TIA
Vicinity Map

Figure 1



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Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix E. Table I presents a summary of the Existing peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during the AM and PM peak periods.

Table I: Existing Intersection LOS Results

ID	Intersection	Intersection Control	AM Peak Hour		PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	North Avenue / Orange Avenue	Signalized	14.5	B	18.5	B
2	North Avenue / Project Driveway	Does Not Exist	N/A	N/A	N/A	N/A
3	North Avenue / State Route 99 SB Off-Ramp	Two-Way STOP	18.9	C	16.2	C
4	North Avenue / State Route 99 NB On-Ramp	Unsignalized	1.7	A	4.6	A
5	North Avenue / Cedar Avenue	Signalized	23.9	C	22.4	C
6	North Avenue / Chestnut Avenue	Signalized	15.1	B	13.8	B
7	State Route 99 NB Off-Ramp / Cedar Avenue	Two-Way STOP	10.5	B	10.0	B
8	Parkway Drive / Cedar Avenue	Two-Way STOP	10.9	B	11.5	B

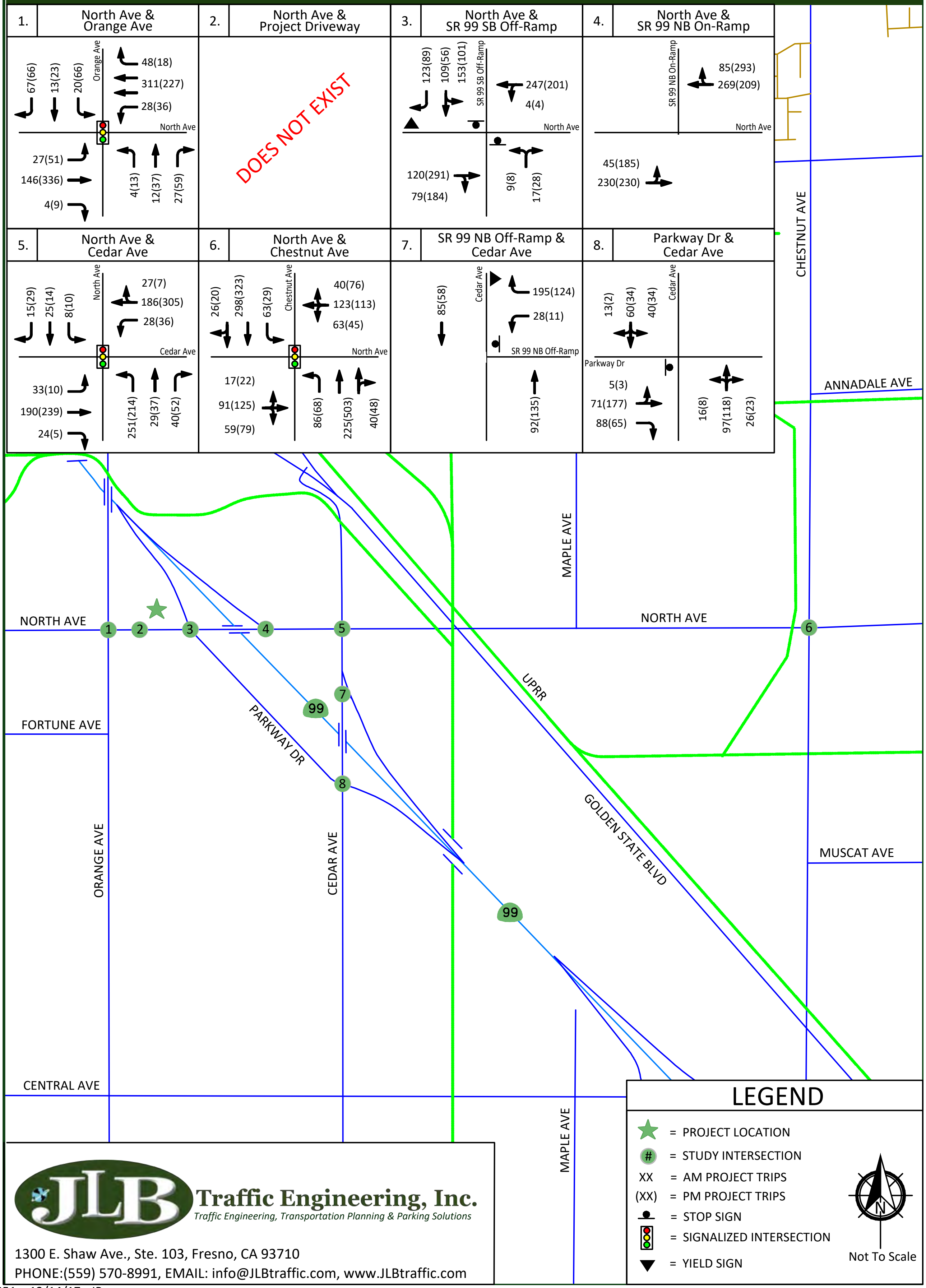
Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Existing Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp satisfies peak hour signal warrants during the AM and PM peak. Based on the signal warrants and engineering judgment, signalization of the intersection of North Avenue and State Route 99 SB Off-Ramp is not recommended at this time. It is worth noting that CA MUTCD states “satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic signal.” Therefore, it is recommended that prior to the installation of a traffic signal, investigation of CA MUTCD warrants 1, 4, and 7, as applicable, be conducted for the intersection of North Avenue and State Route 99 SB Off-Ramp.

City of Fresno - North and Orange TIA
Existing - Traffic Volumes, Geometrics and Controls

Figure 2



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Existing plus Project Traffic Conditions

Project Description

The Project proposes to build a gasoline/service station (12 fueling positions) with convenience market, a 1,998 square-foot coffee/donut shop with drive-through window, 2,992 square feet of fast-food restaurant without drive-through window, and 6,000 square feet of fast-food restaurant with drive-through windows at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. Figure 3 illustrates the latest Project Site Plan.

Project Access

Access to and from the Project site is from two (2) points. One of the access points is an existing, full access point located along the east side of Orange Avenue at a point approximately 250 feet north of North Avenue. The second access point is a proposed access located on the north side of North Avenue at a point approximately 350 feet east of Orange Avenue and is proposed as a right-in, right-out only access.

JLB analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the existing Project site property lines and the Project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network.

Bikeways

Currently, bike lanes exist in the vicinity of the proposed Project. Class II bike lanes exist along North Avenue between Cherry Avenue and Orange Avenue and along Orange Avenue south of the State Route 99 Over Crossing and approximately 650 feet south of Fortune Avenue. The City of Fresno "Bicycle, Pedestrian & Trails Master Plan" recommends that Class II bike lanes be implemented on 1) North Avenue west of Cherry Avenue and east of Orange Avenue, 2) Orange Avenue between Golden State Boulevard and American Avenue, 3) Cedar Avenue between North Avenue and American Avenue, and 4) Chestnut Avenue north of North Avenue. Therefore, it is recommended that the Project implement Class II bike lanes along its frontage to North Avenue.

Transit

Fresno Area Express (FAX) is the transit operator in the City of Fresno. At present, there are no FAX transit routes that operate in the vicinity of the proposed Project. The closest is FAX Route 41 and runs on Maple Avenue and North Avenue, approximately 1.05 miles to the east of the proposed Project. Route 41 operates at 30-minute intervals on weekdays and 50-minute intervals on weekends. Its nearest stop to the Project site is located at the northeast corner of Maple Avenue and North Avenue. This route provides a direct connection to Manchester Transit Center, Duncan Polytech High School, Cedar/Clinton Library, California Christian College, Mosqueda Community Center, Fresno Pacific University, and Senior Citizen Village. Retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

Trip Generation

Table II presents the trip generation for the proposed Project pursuant to the 10th Edition of the Trip Generation Manual with trip generation rates for a Gasoline/Service Station with Convenience Market, Coffee/Donut Shop with Drive-Through Window, Fast-Food Restaurant without Drive-Through Window, and Fast-Food Restaurant with Drive-Through Window. At build-out, the Project is estimated to generate a maximum of 7,965 daily trips, 644 AM peak hour trips and 536 PM peak hour trips.

Table II: Project Only Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Gasoline/Service Station with Convenience Market (945)	12	f.p.	205.36	2,464	12.47	51	49	77	74	150	13.99	51	49	86	82	168
Coffee/Donut Shop with Drive-Through Window (937)	1.998	k.s.f.	820.38	1,639	88.99	51	49	91	87	178	43.38	50	50	44	43	87
Fast-Food Restaurant without Drive-Through Window (934)	2.992	k.s.f.	346.23	1,036	25.10	60	40	45	30	75	28.34	50	50	43	42	85
Fast-Food Restaurant with Drive-Through Window (934)	6.000	k.s.f.	470.95	2,826	40.19	51	49	123	118	241	32.67	52	48	102	94	196
Total Project Trips				**7,965**				**336**	**309**	**644**				**275**	**261**	**536**

Note: f.p. = Fueling Positions
k.s.f. = Thousand Square Feet

Trip Distribution

The trip distribution assumptions were developed based on existing travel patterns, data provided by the developer, knowledge of the study area, the Fresno COG Select Zone Analysis, communication with the City of Fresno, County of Fresno and Caltrans, and knowledge of the City of Fresno and County of Fresno Circulation Elements. Figure 4 illustrates the 2017 Project Only Trips to the study intersections.

Results of Existing plus Project Level of Service Analysis

The Existing plus Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place. Figure 5 illustrates the Existing plus Project turning movement volumes, intersection geometrics, and traffic controls. This scenario assumes that the existing roadway geometrics and traffic controls will remain in place with the exception that the Project's frontage to North Avenue would be developed to City of Fresno standards. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix F. Table III presents a summary of the Existing plus Project peak hour LOS at the study intersections.

Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.

- Add a southbound left-turn lane
- Modify the southbound left-through lane to a through lane
- Lengthen the short southbound flared right-turn lane to create a standard length right-turn lane
- Signalize the intersection with protected left-turn phasing in the northbound and southbound directions and split phasing in the eastbound and westbound directions

Table III: Existing plus Project Intersection LOS Results

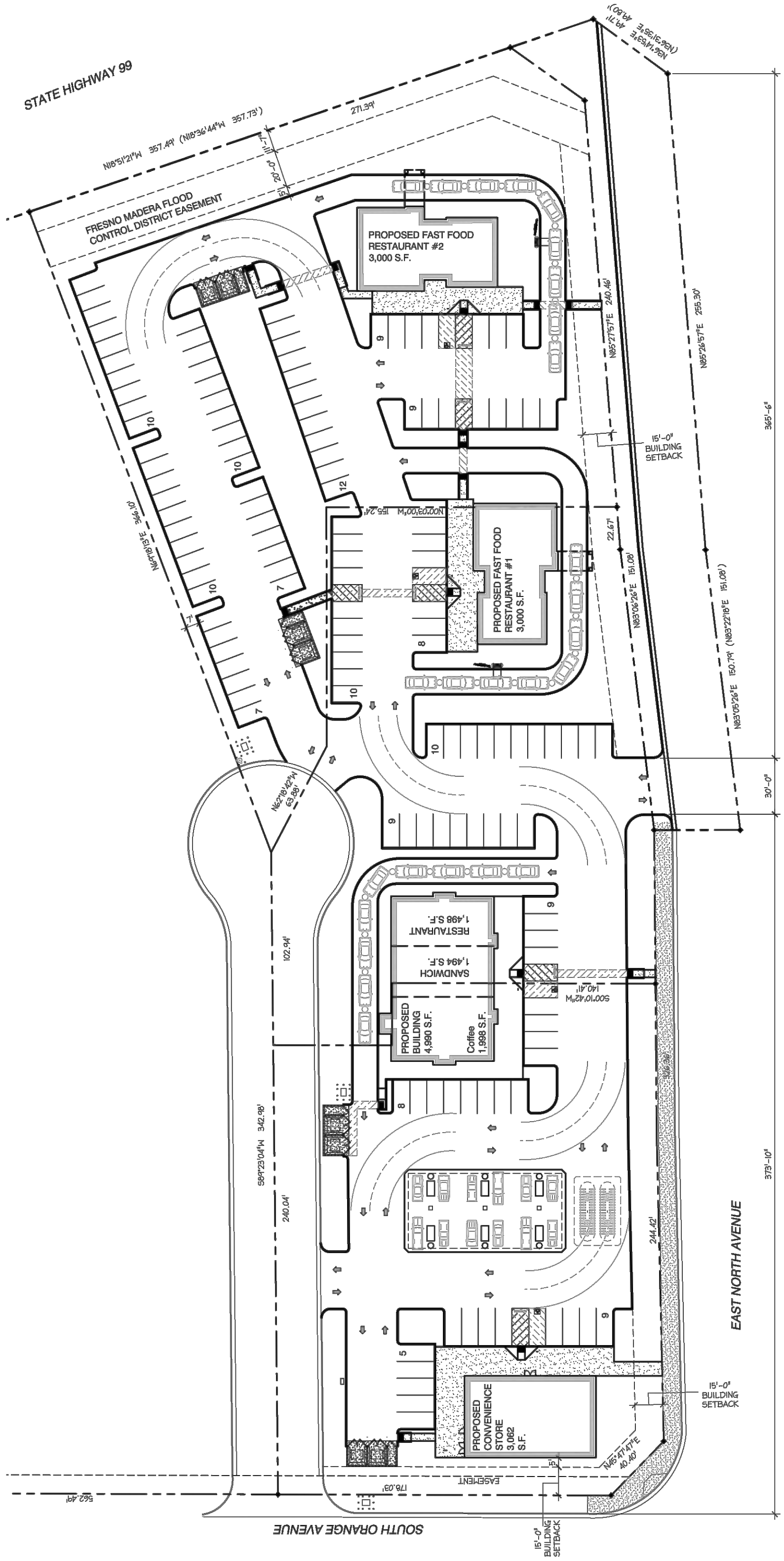
ID	*Intersection*	*Intersection Control*	*AM Peak Hour*		*PM Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	North Avenue / Orange Avenue	Signalized	24.0	C	37.6	D
2	North Avenue / Project Driveway	Two-Way STOP	11.6	B	10.6	B
3	North Avenue / State Route 99 SB Off-Ramp	Two-Way STOP	**53.1**	**F**	22.9	C
		Signalized (Mitigated)	51.2	D	32.1	C
4	North Avenue / State Route 99 NB On-Ramp	Unsignalized	5.3	A	6.4	A
5	North Avenue / Cedar Avenue	Signalized	25.8	C	29.3	C
6	North Avenue / Chestnut Avenue	Signalized	15.7	B	14.6	B
7	State Route 99 NB Off-Ramp / Cedar Avenue	Two-Way STOP	10.6	B	10.2	B
8	Parkway Drive / Cedar Avenue	Two-Way STOP	11.3	B	12.0	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Existing plus Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp satisfies peak hour signal warrants during the AM and PM peaks, while North Avenue and State Route 99 NB On-Ramp satisfies the PM peak hour signal warrant. Based on the signal warrants and engineering judgment, signalization of the intersection of North Avenue and State Route 99 SB Off-Ramp is recommended while that of North Avenue and State Route 99 NB On-Ramp is not. It is worth noting that CA MUTCD states "satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic signal." Therefore, it is recommended that prior to the installation of a traffic signal, investigation of CA MUTCD warrants 1, 4, and 7, as applicable, be conducted for the intersection of North Avenue and State Route 99 NB On-Ramp.

Figure
3



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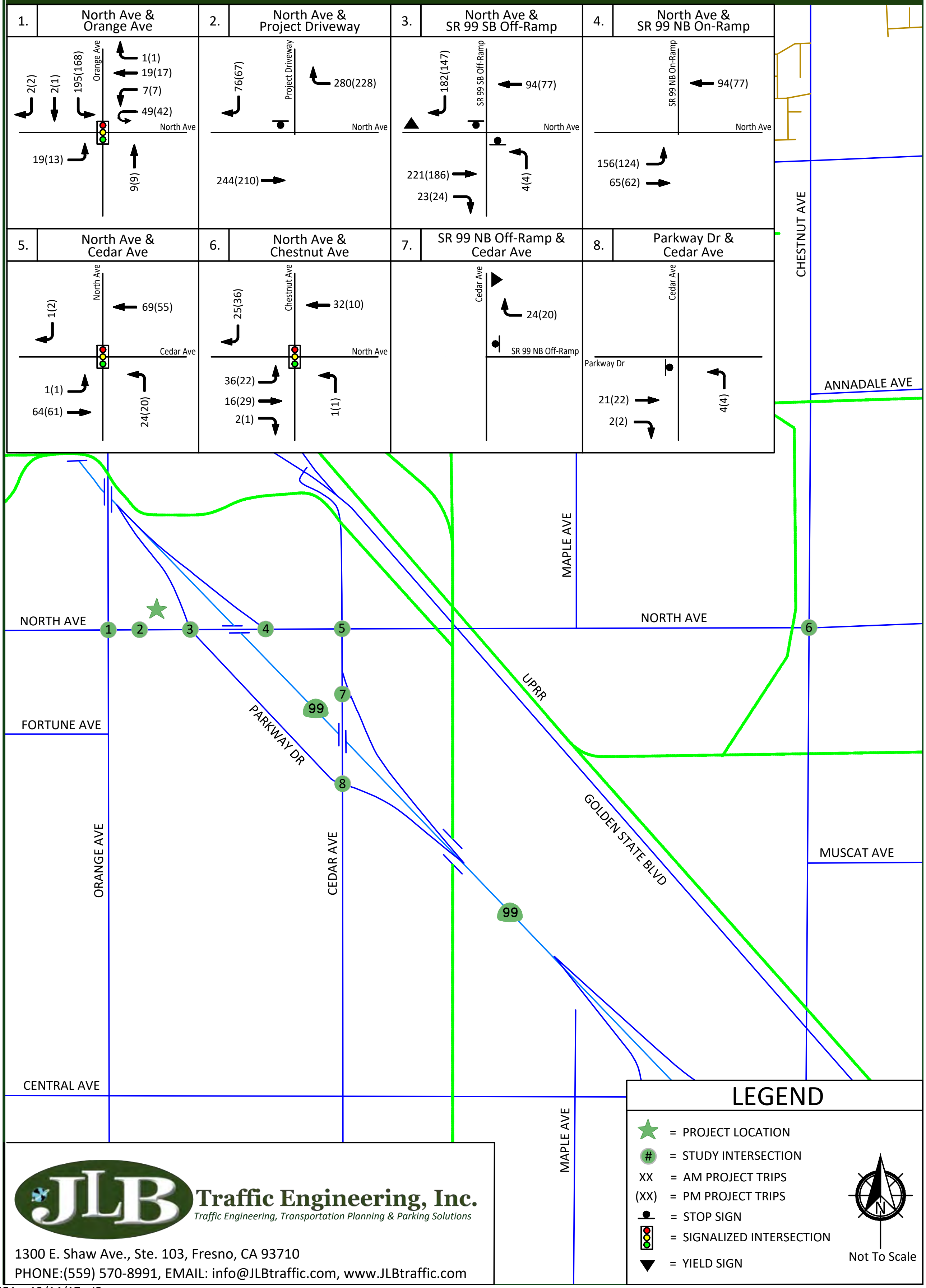
Not To Scale

City of Fresno - North and Orange TIA
2017 Project Only Trips

Figure 4



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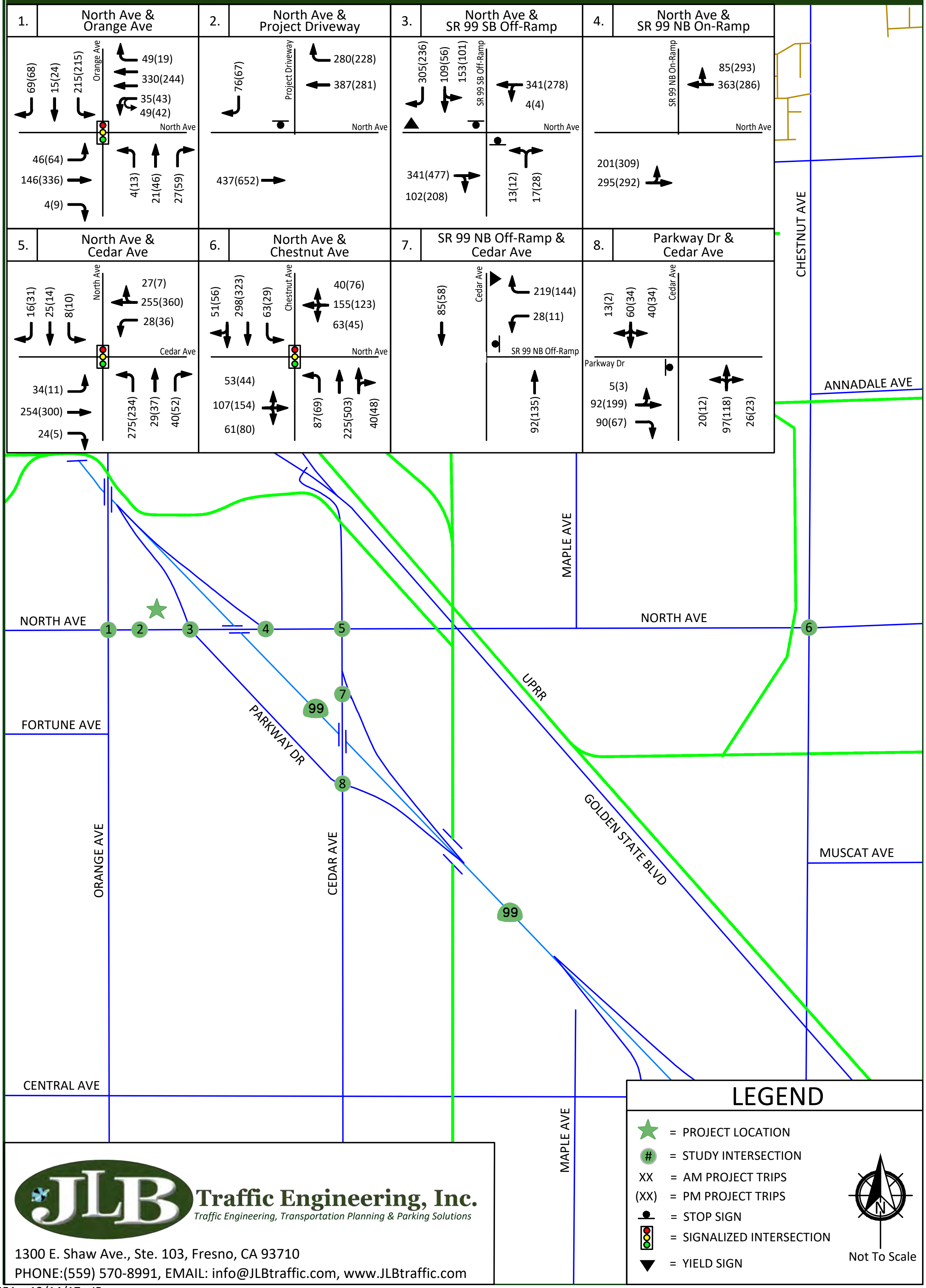
City of Fresno - North and Orange TIA
Exisitng + Project - Traffic Volumes, Geometrics and Controls

Figure 5



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Near Term plus Project Traffic Conditions

Description of Approved and Pipeline Projects

Approved and Pipeline Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. City of Fresno and County of Fresno staff were consulted throughout the preparation of this TIA regarding approved and/or known of projects that could potentially impact the study intersections.

On December 13, 2017, JLB staff conducted a reconnaissance of the surrounding area to confirm the near term projects listed in Table IV were the only projects that could potentially impact the study intersections analyzed in the Near Term plus Project Traffic Conditions. Therefore, it was agreed that the projects listed in Table IV were approved, near approval, or in the pipeline within the proximity of the Project site.

The trip generation listed in Table IV is that which is anticipated to be added to the streets and highways by these projects between the time of the preparation of this report and five (5) years after build-out of the Project. As shown in Table IV, the total trip generation for the Near Term Projects is 28,023 daily trips, 3,648 AM peak hour trips, and 3,780 PM peak hour trips. Figure 6 illustrates the location of the approved, near approval, or pipeline projects and their combined trip assignment to the study intersections under the Near Term plus Project Traffic Conditions scenario.

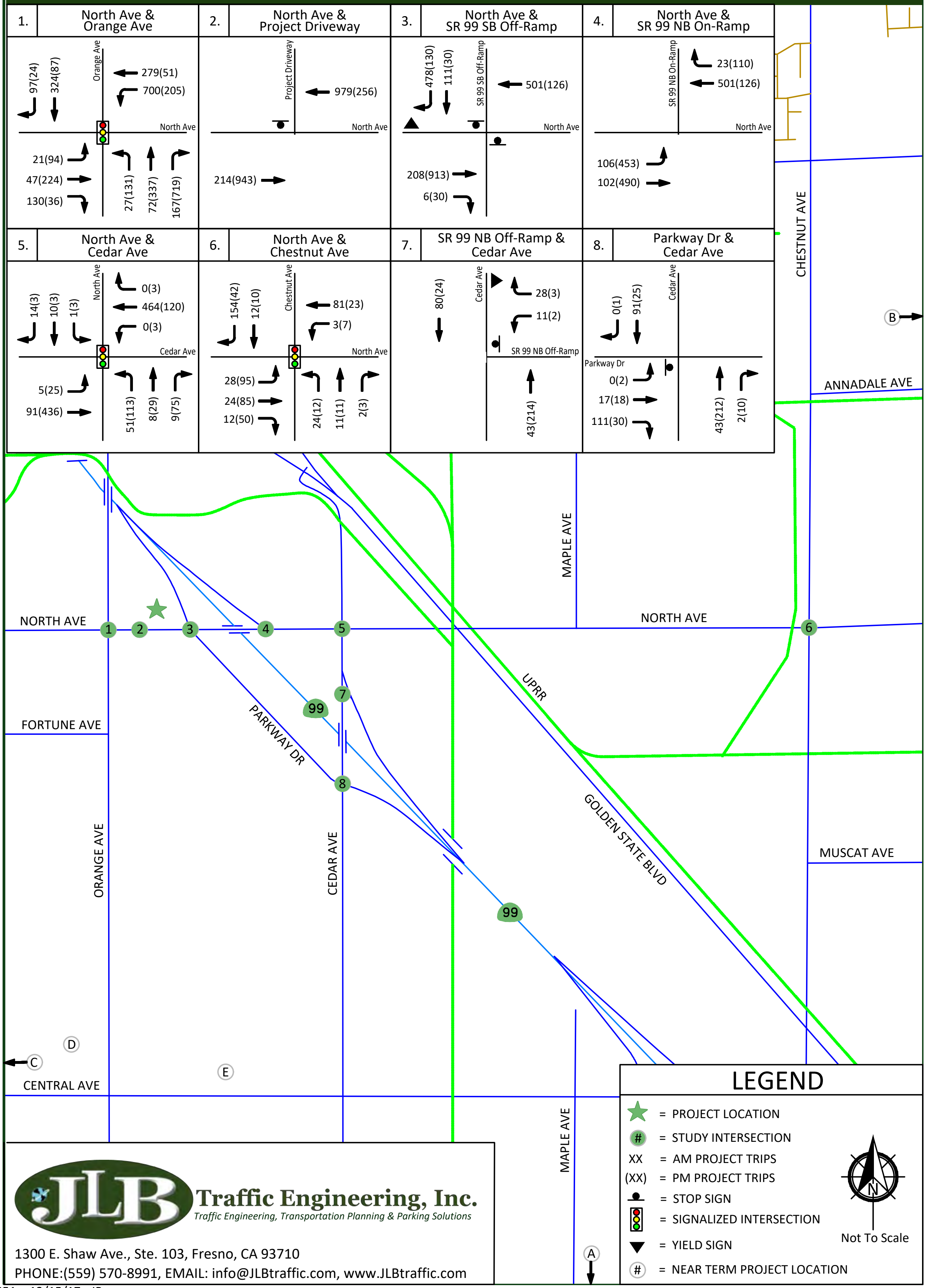
Table IV: Near Term Projects' Trip Generation

Approved Project Location	*Approved or Pipeline Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	4780 S Maple Ave Rezone[1]	1,036	150	145
B	2778 S Willow Ave Rezone[1]	1,547	261	301
C	G3 Development (Ulta)[2]	2,932	426	411
D	TPM 2012-06 (Amazon)[3]	14,519	1,744	1,807
E	Orange Industrial[3]	6,260	839	873
F	North Pointe[4] (Portion of)	1,729	228	243
Total Approved and Pipeline Project Trips		**28,023**	**3,648**	**3,780**

Note: [1] = Trip Generation based on JLB Traffic Engineering, Inc. Traffic Impact Analysis Report
[2] = Trip Generation based on Yamabe & Horn Engineering, Inc. Traffic Impact Study Report
[3] = Trip Generation based on Precision Civil Engineering Traffic Impact Study Report
[4] = Trip Generation based on TJKM Transportation Consultants Traffic Impact Analysis Report

City of Fresno - North and Orange TIA
Near Term Projects' Trip Assignment

Figure 6



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Results of Near Term plus Project Level of Service Analysis

The Near Term plus Project Traffic Conditions scenario assumes that the existing plus Project roadway geometrics and traffic controls will remain in place. Figure 7 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. At present, developers of the Amazon Project have finalized street improvement plans to modify the intersection of North Avenue and Orange Avenue to include the following: 1) the modification of the eastbound trap right-turn lane into a through lane, 2) the striping of an eastbound right-turn lane, 3) the addition of a second westbound left-turn lane, and 4) the modification of the traffic signal to accommodate the modified lane geometrics. Based on information provided to JLB, these improvements will be built in 2018. However, to be conservative this TIA assumes that the baseline would remain in place under this study scenario. LOS worksheets from the Near Term plus Project Traffic Conditions scenario are provided n the Appendix G. Table V presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of North Avenue and Orange Avenue, North Avenue and State Route 99 SB Off-Ramp, and North Avenue and Cedar Avenue are projected to exceed their respective LOS threshold during one or both peak periods. To improve the LOS at each of the intersections projected to exceed its LOS threshold, it is recommended that the following improvements be implemented.

- North Avenue and Orange Avenue
    - Implement the improvements per the approved City of Fresno Street improvement plans as prepared for the Amazon Project.
- North Avenue and State Route 99 SB Off-Ramp
    - Add a second eastbound through lane
    - Add a westbound left-turn lane
    - Modify the westbound left-through lane to a through lane
    - Add southbound dual left-turn lanes
    - Modify the southbound left-through lane to a through lane
    - Lengthen the southbound flared right-turn lane to create a standard length right-turn lane
    - Signalize the intersection with protected left-turn phasing in all directions
- North Avenue and State Route 99 NB On-Ramp (improvements needed to improve queuing)
    - Add eastbound dual left-turn lanes
    - Modify the eastbound left-through lane to a through lane
    - Add a second eastbound through lane
    - Add a second westbound through lane
    - Signalize the intersection with protected left-turn phasing in all directions
- North Avenue and Cedar Avenue
    - Convert the eastbound right-turn lane to a through-right lane
    - Add a second westbound through lane
    - Add a second northbound left-turn lane
    - Modify the traffic signal to accommodate the added lane geometrics

Between the Existing Traffic Conditions scenario and the Near Term plus Project Traffic Conditions scenario, the Project accounts for 22.1 percent of the daily trips, 15.0 percent of the AM peak hour trips, and 12.4 percent of the PM peak hour trips of growth in traffic, while the rest of the growth is attributable to the near term projects. Therefore, one can deduce that the mitigation measures presented under this scenario may not be necessary immediately upon completion of the proposed Project. However, if all of the near term projects are developed close to the completion date of the proposed Project, the detailed recommended improvements presented above may be necessary in order to improve the LOS to an acceptable threshold.

Table V: Near Term plus Project Intersection LOS Results

ID	Intersection	Intersection Control	AM Peak Hour		PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	North Avenue / Orange Avenue	Signalized	**>120.0**	**F**	**>120.0**	**F**
		Signalized (Mitigated)	42.4	D	59.01	E
2	North Avenue / Project Driveway	Two-Way STOP	22.9	C	12.0	B
3	North Avenue / State Route 99 SB Off-Ramp	Two-Way STOP	**>120.0**	**F**	**>120.0**	**F**
		Signalized (Mitigated)	38.2	D	30.7	C
4	North Avenue / State Route 99 NB On-Ramp	Unsignalized	18.3	C	20.8	C
		Signalized (Mitigated)	6.2	A	9.1	A
5	North Avenue / Cedar Avenue	Signalized	**>120.0**	**F**	79.2	E
		Signalized (Mitigated)	25.6	C	41.7	D
6	North Avenue / Chestnut Avenue	Signalized	19.9	B	19.5	B
7	State Route 99 NB Off-Ramp / Cedar Avenue	Two-Way STOP	11.6	B	12.7	B
8	Parkway Drive / Cedar Avenue	Two-Way STOP	13.0	B	17.0	C

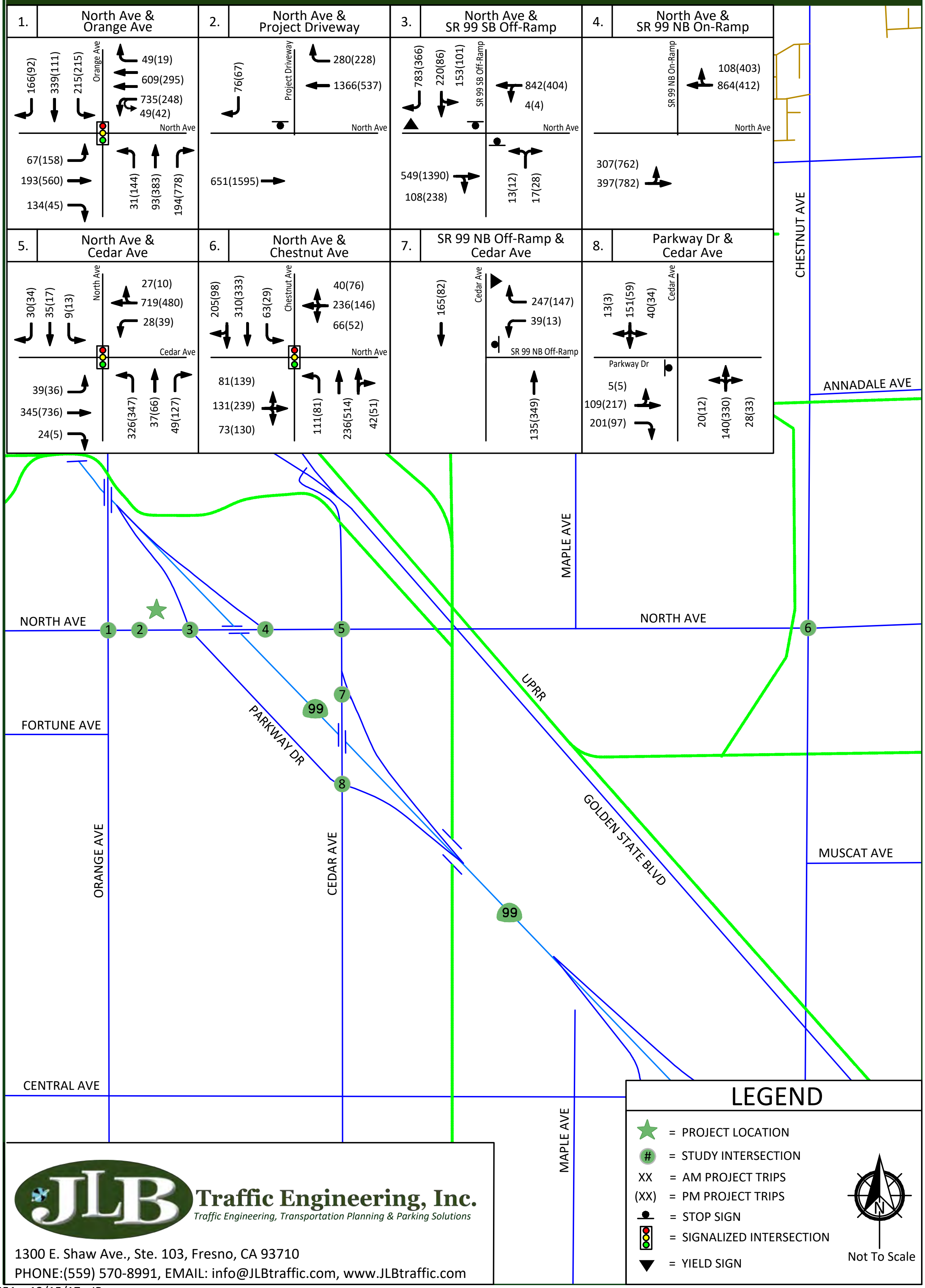
Notes: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Near Term plus Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersections of North Avenue and State Route 99 SB Off-Ramp and North Avenue and State Route 99 NB On-Ramp satisfy peak hour signal warrants during the AM and PM peaks. Based on the signal warrants and engineering judgment, signalization of these intersections is recommended.

City of Fresno - North and Orange TIA
Near Term + Project - Traffic Volumes, Geometrics and Controls

Figure 7



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Cumulative Year 2035 No Project Traffic Conditions

The Cumulative Year 2035 No Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place with a few exceptions. By the year 2035, the baseline geometrics assume that the interchange of State Route 99 with North Avenue will be reconstructed and that the interchange of State Route 99 with Cedar Avenue will be removed. Furthermore, on December 6, 2016, Caltrans completed the preparation of a Project Study Report-Project Development Support (PSR-PDS) to request programming for funding for the Project Approval and Environmental Document Phase. The PSR-PDS contained four (4) interchange project alternatives. All four alternatives would remove the connection of Parkway Drive to North Avenue by redirecting it west towards Orange Avenue.

At the time of preparation of this TIA, a preferred project alternative had not been selected. For purposes of this study, it was assumed that Alternative 3: Spread Diamond would be implemented. Measure C has the reconstruction of the interchange of State Route 99 with North Avenue and Cedar Avenue as an Urban Tier 1, Project M. A total of $47.14 million has been programmed in Measure C, while the Fresno COG Regional Transportation Program (RTP) has programmed $12.50 million towards the North Avenue and Cedar Avenue interchange reconstruction. Therefore, a total of $59.64 million are being allocated for this project. Appendix H includes excerpts from the Measure C and Fresno COG RTP programs as well as the Alternative 3: Spread Diamond Interchange concept.

Results of Cumulative Year 2035 No Project Level of Service Analysis

Figure 8 illustrates the Cumulative Year 2035 No Project total turning movement volumes, assumed intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2035 No Project Traffic Conditions scenario are provided in Appendix I. Table VI presents a summary of the Cumulative Year 2035 No Project peak hour LOS at the study intersections.

Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.

- North Avenue and Chestnut Avenue
  - Add an eastbound left-turn lane
  - Change the eastbound left-through-right lane to a through lane
  - Add an eastbound right-turn lane
  - Add a westbound left-turn lane
  - Change the westbound left-through-right lane to a through lane
  - Add a westbound right-turn lane
  - Modify the traffic signal to accommodate the added lane geometrics

Table VI: Cumulative Year 2035 No Project Intersection LOS Results

ID	Intersection	Intersection Control	AM Peak Hour		PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	North Avenue / Orange Avenue	Signalized	37.3	D	55.8	E
2	North Avenue / Project Driveway	Would Not Exist	N/A	N/A	N/A	N/A
3	North Avenue / State Route 99 SB Off-Ramp	Signalized	23.9	C	13.4	B
4	North Avenue / State Route 99 NB On-Ramp	Signalized	15.2	B	22.9	C
5	North Avenue / Cedar Avenue	Signalized	18.5	B	42.2	D
6	North Avenue / Chestnut Avenue	Signalized	**80.9**	**F**	**96.2**	**F**
		Signalized (Mitigated)	40.2	D	47.5	D
7	State Route 99 NB Off-Ramp/ Cedar Avenue	Would Not Exist	N/A	N/A	N/A	N/A
8	Parkway Drive / Cedar Avenue	Two-Way STOP	11.8	B	10.4	B

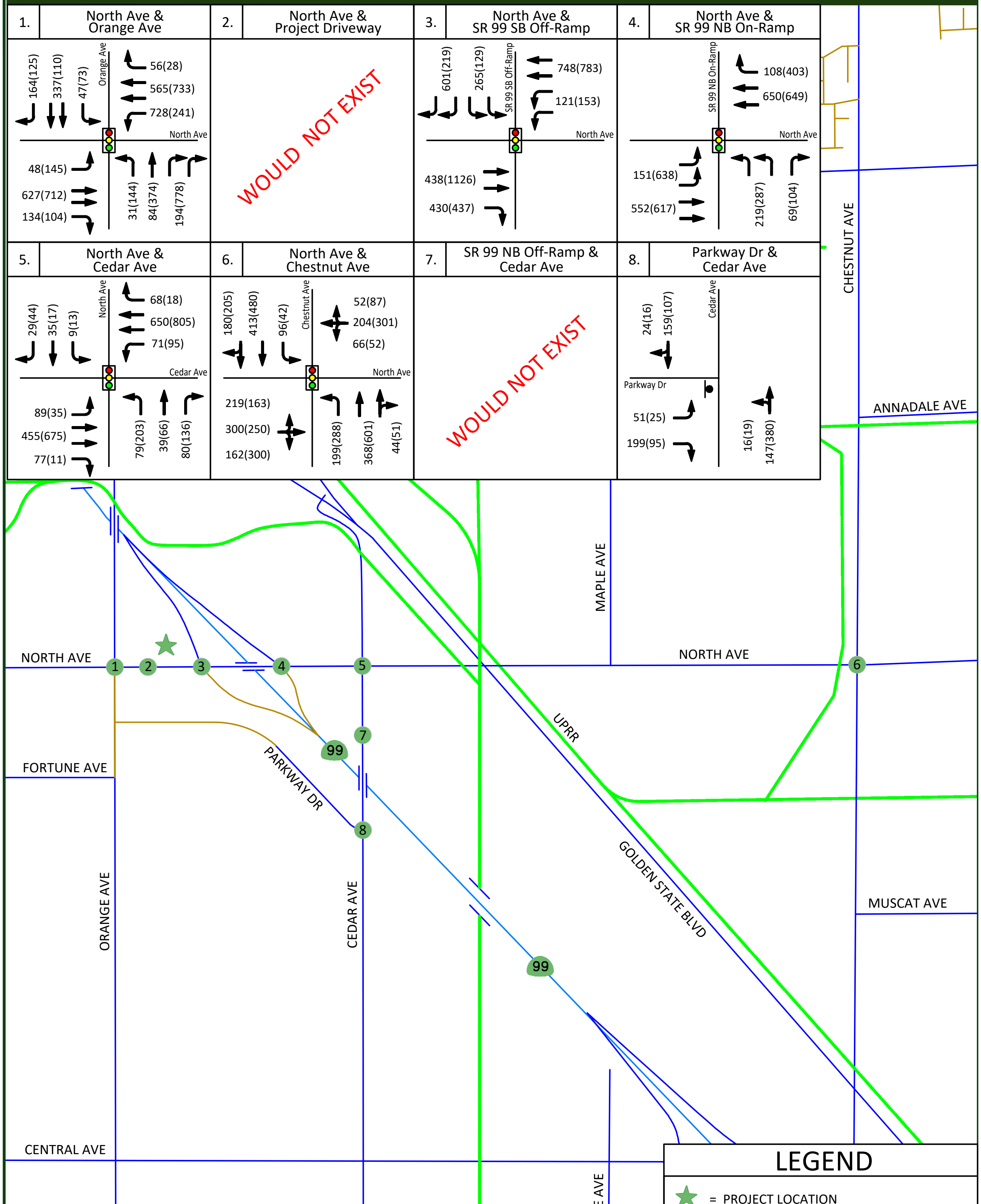
Notes: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Cumulative Year 2035 No Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, none of the unsignalized intersections satisfy peak hour signal warrants.

City of Fresno - North and Orange TIA
Cumulative Year 2035 No Project - Traffic Volumes, Geometrics and Controls

Figure 8



LEGEND

- ★ = PROJECT LOCATION
- # = STUDY INTERSECTION
- XX = AM PROJECT TRIPS
- (XX) = PM PROJECT TRIPS
- = STOP SIGN
- = SIGNALIZED INTERSECTION

N

Not To Scale

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Cumulative Year 2035 plus Project Traffic Conditions

The Cumulative Year 2035 plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as presented in the Cumulative Year 2035 No Project Traffic Conditions scenario. With these changes in the roadway network, it is projected that travel patterns may differ from what is anticipated for the immediate Project build-out. Figure 9 illustrates the 2035 Project Only Trips to the study intersections.

Results of Cumulative Year 2035 plus Project Level of Service Analysis

Figure 10 illustrates the Cumulative Year 2035 plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2035 plus Project Traffic Conditions scenario are provided in Appendix J. Table VII presents a summary of the Cumulative Year 2035 plus Project peak hour LOS at the study intersections.

Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the same improvements presented in the Cumulative Year 2035 No Project Traffic Conditions scenario be implemented.

Table VII: Cumulative Year 2035 plus Project Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM Peak Hour*		*PM Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	North Avenue / Orange Avenue	Signalized	62.2	E	62.4	E
2	North Avenue / Project Driveway	Two-Way STOP	23.6	C	16.7	C
3	North Avenue / State Route 99 SB Off-Ramp	Signalized	38.2	D	28.5	C
4	North Avenue / State Route 99 NB On-Ramp	Signalized	15.2	B	19.6	B
5	North Avenue / Cedar Avenue	Signalized	18.9	B	35.0	C
6	North Avenue / Chestnut Avenue	Signalized	**103.3**	**F**	**116.5**	**F**
		Signalized (Mitigated)	47.0	D	53.5	D
7	State Route 99 NB Off-Ramp / Cedar Avenue	Would Not Exist	N/A	N/A	N/A	N/A
8	Parkway Drive / Cedar Avenue	Two-Way STOP	11.8	B	10.4	B

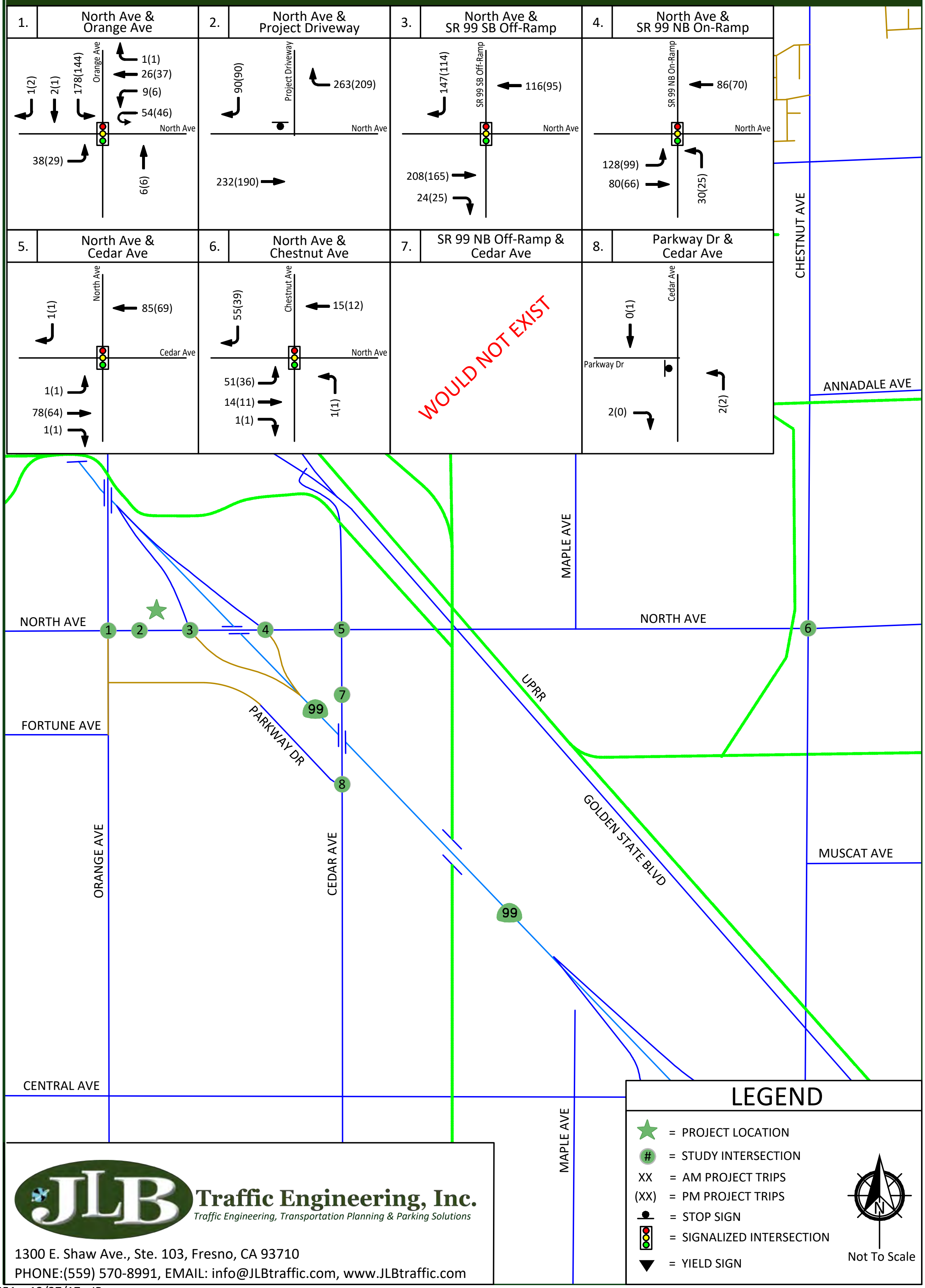
Notes: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Cumulative Year 2035 plus Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, none of the unsignalized intersections satisfy peak hour signal warrants.

City of Fresno - North and Orange TIA
2035 Project Only Trips

Figure 9



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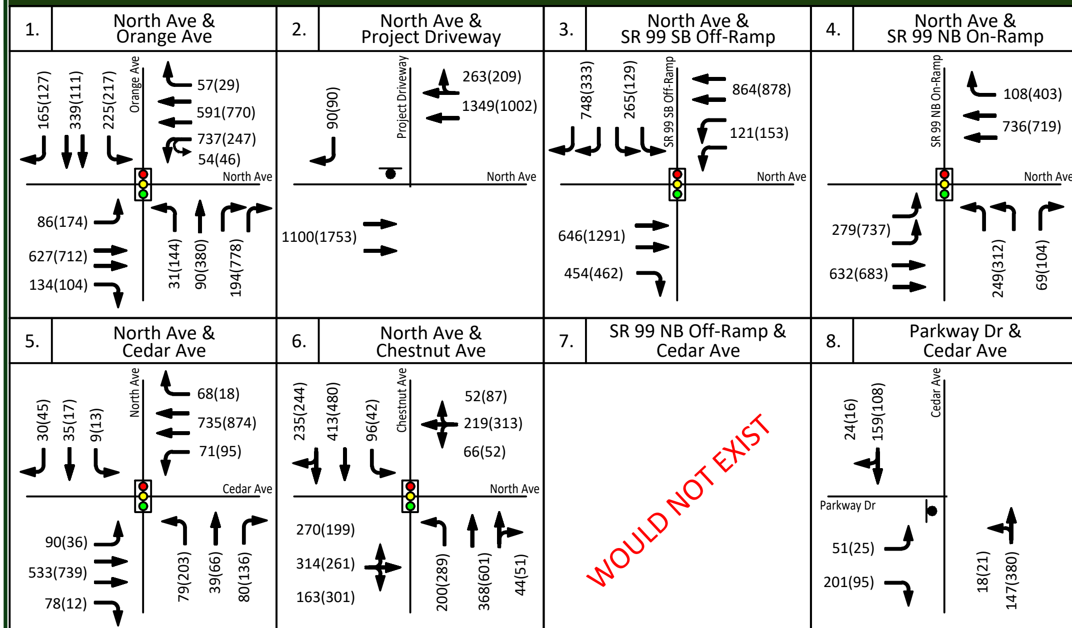
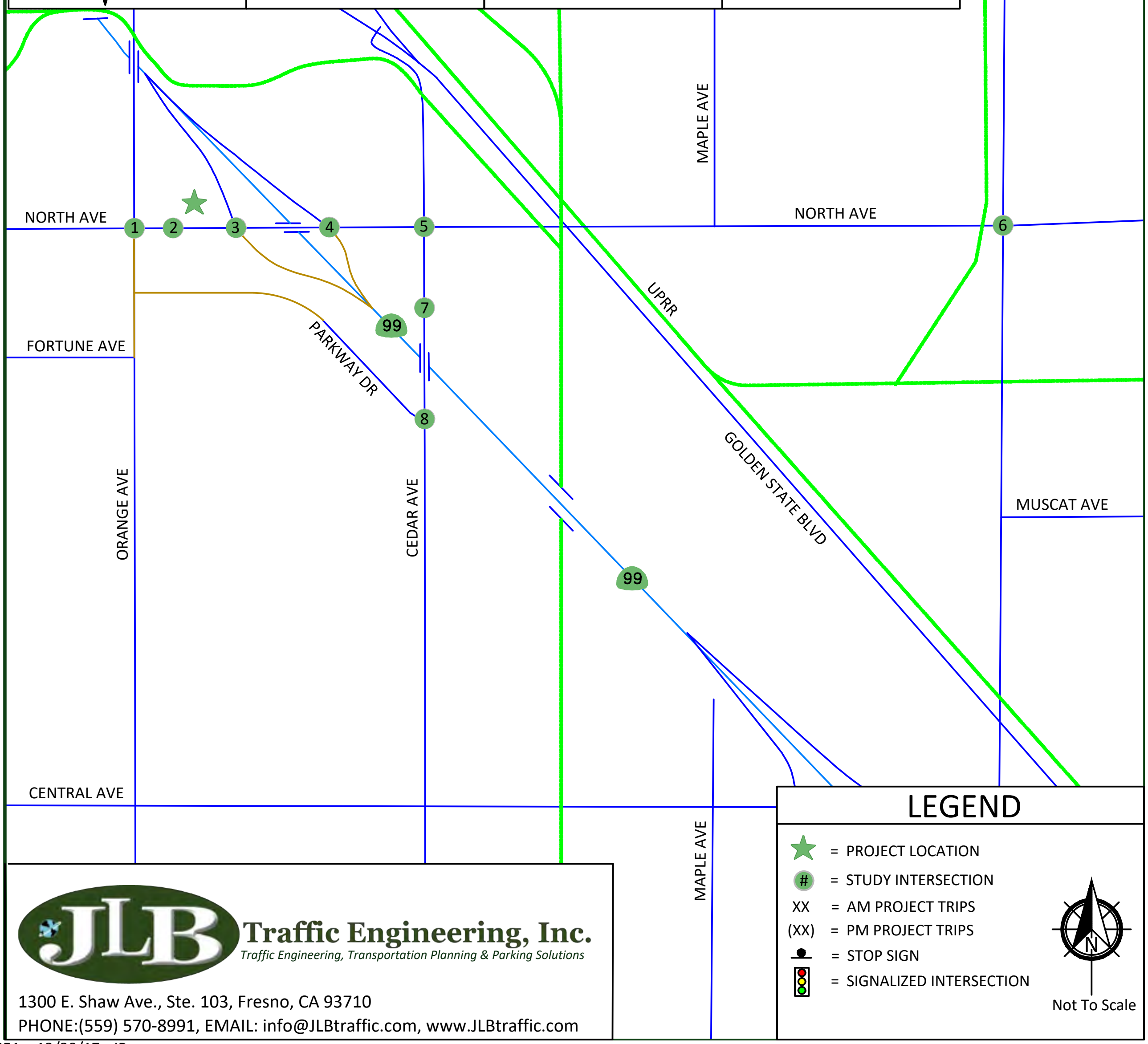
004-051 - 12/27/17 - JR

City of Fresno - North and Orange TIA
Cumulative Year 2035 + Project - Traffic Volumes, Geometrics and Controls

Figure 10





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Queuing Analysis

Table VIII provides a queue length summary for left- and right-turn lanes at all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix A contains the methodologies used to evaluate these intersections.

Queuing analyses were completed using Sim Traffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths in feet. Per the Synchro manual, “the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes.” The queues shown on Table VIII are the 95th percentile queue lengths for the respective lane movements.

The Highway Design Manual (HDM) provides guidance for determining deceleration lengths for the left- and right-turn lanes based on design speeds. Per the HDM criteria, “tapers for right-turn lanes are usually unnecessary since the main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane.” Therefore, a bay taper length pursuant to the Caltrans HDM would need to be added, as necessary, to the recommended storage lengths presented below.

Table VIII: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative 2035 No Project		Cumulative 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Orange Avenue / North Avenue	EB Left	250	49	79	84	123	124	304	79	269	186	273
		EB Right	*	9	12	6	11	130	58	104	148	109	82
		WB Left	185	77	57	121	122	*	*	*	*	*	*
		WB Dual Lefts	*	*	*	*	*	262	186	377	152	345	224
		WB Right	100	48	24	45	20	110	24	35	82	94	84
		NB Left	150	25	26	13	25	64	252	69	231	43	288
		NB Right	150	34	59	37	46	*	*	*	*	*	*
		NB Dual Rights	*	*	*	*	*	78	300	84	331	99	320
		SB Left	100	32	74	198	175	212	185	84	125	209	203
		SB Right	130	41	39	105	131	207	293	105	76	151	98
2	North Avenue / Driveway	SB Right	*	*	*	58	59	142	52	*	*	264	81
3	North Avenue / SR 99 SB Off-Ramp	EB Right	*	60	89	183	377	81	119	232	168	225	144
		WB Left	*	*	*	*	*	3	2	*	*	*	*
		WB Dual Lefts	*	*	*	*	*	*	*	83	95	70	97
		NB Left	*	13	9	54	24	50	63	*	*	*	*
		NB Right	*	34	47	38	63	53	71	*	*	*	*
		SB Left	*	*	*	229	166	156	149	*	*	*	*
		SB Dual Lefts	*	*	*	*	*	*	*	115	77	138	94
		SB Right	*	*	*	134	88	*	*	*	*	*	*
		SB Dual Rights	*	*	*	*	*	390	95	238	88	387	172
4	North Avenue / SR 99 NB On-Ramp	EB Dual Lefts	*	*	*	*	*	148	300	123	167	164	206
		WB Right	85	*	60	36	50	40	247	88	157	64	185
		NB Dual Lefts	*	*	*	*	*	*	*	133	158	136	146
		NB Right	*	*	*	*	*	*	*	84	86	78	84

Table VIII: Queuing Analysis (cont.)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing		Existing plus Project		Near Term plus Project		Cumulative 2035 No Project		Cumulative 2035 plus Project	
				AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
5	Cedar Avenue / North Avenue	EB Left	150	78	46	67	50	89	68	133	101	127	68
		EB Right	100	46	7	32	7	*	*	54	26	72	19
		WB Left	150	69	58	70	105	91	85	102	162	120	161
		WB Right	*	*	*	*	*	*	*	51	33	53	17
		NB Left	180	167	169	242	254	*	*	120	258	126	337
		NB Dual Lefts	*	*	*	*	*	182	250	*	*	*	*
		NB Right	180	36	50	41	53	71	90	43	124	69	118
		SB Left	155	31	32	32	62	31	71	30	56	29	41
		SB Right	355	49	63	41	93	68	53	46	53	37	80
6	Chestnut Avenue / North Avenue	EB Left	*	*	*	*	*	*	*	247	370	242	343
		EB Right	*	*	*	*	*	*	*	76	193	94	244
		WB Left	*	*	*	*	*	*	*	122	116	83	107
		WB Right	*	*	*	*	*	*	*	71	85	66	197
		NB Left	245	101	76	97	106	126	124	276	365	365	322
		SB Left	150	89	56	86	76	82	51	125	57	151	95
7	Cedar Avenue / SR 99 NB Off-Ramp	WB Left	>300	40	27	38	45	56	26	*	*	*	*
		WB Right	*	*	*	*	31	149	53	*	*	*	*
8	Cedar Avenue / Parkway Drive	EB Left	*	*	*	*	*	*	*	92	20	56	23
		EB Right	100	60	22	42	12	141	41	123	37	80	23

Note: * = Does not exist or is not projected to exist

Based on the Synchro output files and traffic engineering judgement, it is recommended that the storage capacity for the following be considered for the Cumulative Year 2035 plus Project Traffic Conditions.

- Orange Avenue and North Avenue
  - Consider increasing the storage capacity of the eastbound left-turn lane to 275 feet.
  - Consider setting the storage capacity of the eastbound right-turn lane to 150 feet.
  - Consider setting the storage capacity of the westbound dual left-turn lanes to 375 feet.
  - Consider increasing the storage capacity of the westbound right-turn lane to 125 feet.
  - Consider increasing the storage capacity of the northbound left-turn lane to 300 feet.
  - Consider increasing the storage capacity of the northbound dual right-turn lanes to 325 feet.
  - Consider increasing the storage capacity of the southbound left-turn lane to 200 feet.
  - Consider increasing the storage capacity of the southbound right-turn lane to 150 feet.
- North Avenue and State Route 99 SB Off-Ramp
  - Consider setting the storage capacity of the eastbound right-turn lane to 225 feet.
  - Consider setting the storage capacity of the westbound dual left-turn lanes to 100 feet.
  - Consider setting the storage capacity of the southbound dual left-turn lanes to 150 feet.
  - Consider setting the storage capacity of the southbound dual right-turn lanes to 400 feet.

- North Avenue and State Route 99 NB On-Ramp
  - Consider setting the storage capacity of the eastbound dual left-turn lanes to 225 feet.
  - Consider increasing the storage capacity of the westbound right-turn lane to 200 feet.
  - Consider setting the storage capacity of the northbound dual left-turn lanes to 175 feet.
  - Consider setting the storage capacity of the northbound right-turn lane to 100 feet.
- Cedar Avenue and North Avenue
  - Consider increasing the storage capacity of the westbound left-turn lane to 175 feet.
  - Consider setting the storage capacity of the westbound right-turn lane to 75 feet.
  - Consider increasing the storage capacity of the northbound left-turn lane to 350 feet.
- Chestnut Avenue and North Avenue
  - Consider setting the storage capacity of the eastbound left-turn lane to 375 feet.
  - Consider setting the storage capacity of the eastbound right-turn lane to 250 feet.
  - Consider setting the storage capacity of the westbound left-turn lane to 125 feet.
  - Consider setting the storage capacity of the westbound right-turn lane to 200 feet.
  - Consider increasing the storage capacity of the northbound left-turn lane to 375 feet
- Cedar Avenue and Parkway Drive
  - Consider setting the storage capacity of the eastbound left-turn lane to 100 feet.
  - Consider setting the storage capacity of the eastbound right-turn lane to 125 feet.

At the remaining approaches to the study intersections, the existing or planned storage capacity will be sufficient to accommodate the maximum queue.

Project’s Pro-Rata Fair Share of Future Transportation Improvements

The Project’s fair share percentage impacts to the future improvements which are not fully funded by existing impact fee programs are provided in Table IX. Caltrans guidelines for the Preparation of Traffic Impact Studies. The Project's pro-rata fair shares were calculated utilizing the Existing volumes, 2035 Project Only Trips, and the Cumulative Year 2035 plus Project volumes. Figure 2 illustrates the Existing volumes, Figure 9 illustrates the 2035 Project Only Trips, and Figure 10 illustrates the Cumulative Year 2035 plus Project traffic volumes. Since the critical peak period for the study facilities was determined to be during the AM peak, the AM peak volumes are utilized to determine the Project’s pro-rata fair share.

It is recommended that the Project contribute its equitable fair share as listed in Table IX for the future improvements necessary to maintain an acceptable LOS or turn lane storage capacity. However, fair share contributions should only be made for those facilities or portion thereof currently not funded by the responsible agency roadway impact fee program(s), as appropriate. For those improvements not presently covered by local and regional roadway impact fee programs, it is recommended that the Project contribute its equitable fair share. Payment of the Project’s equitable fair share in addition to the local and regional impact fee programs would satisfy the Project’s traffic mitigation measures.

This study does not provide construction costs for the recommended mitigation measures; therefore, if the recommended mitigation measures are implemented, it is recommended that the developer work with the City of Fresno to develop the estimated construction cost.

Table IX: Project’s Fair of Share of Future Roadway Improvements

ID	*Intersection*	*Existing Traffic Volumes (AM Peak)*	*Cumulative Year 2035 + Project Traffic Volumes (AM Peak)*	*2035 Project Only Trips (AM Peak)*	*Project's Fair Share (%)*
3	North Avenue / SR 99 SB Off-Ramp	861	3,098	495	22.13%
4	North Avenue / SR 99 NB Off-Ramp	629	2,073	324	22.44%
5	North Avenue / Cedar Avenue	856	1,847	166	16.75%
6	North Avenue / Chestnut Avenue	1,131	2,440	137	10.47%

Note: Project Fair Share = ((2035 Project Only Trips) / (Cumulative Year 2035 + Project Traffic Volumes - Existing Traffic Volumes)) x 100

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are provided below.

Existing Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during the AM and PM peak periods.

Existing plus Project Traffic Conditions

- A review of the existing Project site property lines and the Project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network.
- It is recommended that the Project implement Class II bike lanes along its frontage to North Avenue.
- At build-out, the Project is estimated to generate a maximum of 7,965 daily trips, 644 AM peak hour trips and 536 PM peak hour trips.
- Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
    - Add a southbound left-turn lane
    - Modify the southbound left-through lane to a through lane
    - Lengthen the short southbound flared right-turn lane to create a standard length right-turn lane
    - Signalize the intersection with protected left-turn phasing in the northbound and southbound directions and split phasing in the eastbound and westbound directions

Near Term plus Project Traffic Conditions

- The total trip generation for the Near Term Projects is 28,023 daily trips, 3,648 AM peak hour trips, and 3,780 PM peak hour trips.
- The Project accounts for 22.1 percent of the daily trips, 15.0 percent of the AM peak hour trips, and 12.4 percent of the PM peak hour trips of growth in traffic, while the rest of the growth is attributable to the near term projects. Therefore, one can deduce that the mitigation measures presented under this scenario may not be necessary immediately upon completion of the proposed Project.
- Under this scenario, the intersections of North Avenue and Orange Avenue, North Avenue and State Route 99 SB Off-Ramp, and North Avenue and Cedar Avenue are projected to exceed their respective LOS threshold during one or both peak periods. To improve the LOS at each of the intersections projected to exceed its LOS threshold, it is recommended that the following improvements be implemented.
    - North Avenue and Orange Avenue
        - Implement the improvements per the approved City of Fresno Street improvement plans as prepared for the Amazon Project.
    - North Avenue and State Route 99 SB Off-Ramp
        - Add a second eastbound through lane
        - Add a westbound left-turn lane
        - Modify the westbound left-through lane to a through lane
        - Add southbound dual left-turn lanes

        - Modify the southbound left-through lane to a through lane
        - Lengthen the southbound flared right-turn lane to create a standard length right-turn lane
        - Signalize the intersection with protected left-turn phasing in all directions
    - North Avenue and State Route 99 NB On-Ramp (improvements needed to improve queuing)
        - Add eastbound dual left-turn lanes
        - Modify the eastbound left-through lane to a through lane
        - Add a second eastbound through lane
        - Add a second westbound through lane
        - Signalize the intersection with protected left-turn phasing in all directions
    - North Avenue and Cedar Avenue
        - Convert the eastbound right-turn lane to a through-right lane
        - Add a second westbound through lane
        - Add a second northbound left-turn lane
        - Modify the traffic signal to accommodate the added lane geometrics

Cumulative Year 2035 No Project Traffic Conditions

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
    - North Avenue at Chestnut Avenue
        - Add an eastbound left-turn lane
        - Change the eastbound left-through-right lane to a through lane
        - Add an eastbound right-turn lane
        - Add a westbound left-turn lane
        - Change the westbound left-through-right lane to a through lane
        - Add a westbound right-turn lane
        - Modify the traffic signal to accommodate the added lane geometrics

Cumulative Year 2035 plus Project Traffic Conditions

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the same improvements presented in the Cumulative Year 2035 No Project Traffic Conditions scenario be implemented.

Queuing Analysis

- It is recommended that the City consider left- and right-turn lane storage lengths as indicated in the Queuing Analysis.

Project Equitable Fair Share Impact Analysis

- It is recommended that the Project contribute its equitable fair share as presented in Table IX.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, P.E., T.E.	Project Manager
Susana Maciel, E.I.T.	Engineering I/II
Alan Miao, E.I.T.	Engineer I/II
Jove Alcazar	Engineer I/II
Javier Rios	Engineer I/II
Veronica Benavides	Clerical

Persons Consulted:

Jill Gormley, P.E.	City of Fresno
Harpreet Kooner	County of Fresno
Tong Xiong	County of Fresno
David Padilla	Caltrans
Kai Han, T.E.	Fresno COG
Neil Angelillo	True North properties

References

1. *Trip Generation,* 10th Edition, Washington D.C., Institute of Transportation Engineers, 2017
2. City of Fresno, *2035 General Plan*
3. *County of Fresno, 2000 General Plan*
4. *2014 California Manual on Uniform Traffic Control Devices*, Caltrans, November 7, 2014
5. Guide for the Preparation of Traffic Impact Studies, Caltrans, dated December 2002.
6. Final 2006 Measure "C" Extension Expenditure Plan
7. Fresno COG 2014 Regional Transportation Plan

Appendix A: Scope of Work

October 31, 2017

Mrs. Jill Gormley, PE
Traffic Engineer
City of Fresno
2600 Fresno Street
Fresno, CA 93721-3616

Via Email Only: Jill.Gormley@fresno.gov

Subject: Proposed Draft Scope of Work for the Preparation of a Traffic Impact Analysis for the Proposed Commercial Development at the Northeast Corner of North Avenue and Orange Avenue in the City of Fresno (JLB Project 004-051)

Dear Mrs. Gormley,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) for the proposed commercial development (Project) described below. The Project proposes to build a gasoline station with convenience market, and two fast food restaurants with drive-through windows on 3.92 acres at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. An aerial of the Project vicinity and the Project site plan can be found in Exhibit A and Exhibit B respectively.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the on-going planning process. In order to evaluate the on and off-site traffic impacts of the proposed project, JLB proposes the following draft scope of work.

Scope of Work

- Request a Fresno Council of Governments (Fresno COG) traffic forecast model run for the Project (Select Zone Analysis), which will include the Project and the streets to be analyzed. The Fresno COG traffic forecasting model will be used to forecast traffic volumes for the Base Year 2017 and Cumulative Year 2035 plus Project scenarios.
- JLB will evaluate existing and forecast levels of service (LOS) at the study intersection(s). JLB will use HCM 2010 methodologies within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.
- Evaluate on-site circulation and provide recommendations as necessary to improve circulation to the site and within the Project site.
- As necessary, obtain recent (less than two years) or schedule and conduct new traffic counts at the study facility(ies).

- Perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions, including geometrics and traffic controls, will be verified.
- Forecast trip distribution based on turn count information, input from Fresno COG staff and knowledge of the existing and planned circulation network in the vicinity of the Project.
- Prepare California Manual on Uniform Traffic Control Devices (CA MUTCD) peak hour signal warrants for un-signalized study intersections.
- JLB will qualitatively analyze existing and planned transit routes in the Project's vicinity.
- JLB will qualitatively analyze existing and planned bikeways in the Project's vicinity.

Study Scenarios:

1. Existing traffic conditions with needed improvements (if any);
2. Existing plus Project traffic conditions with proposed improvement measures (if any);
3. Near Term plus Project traffic conditions with proposed mitigation measures (if any); and
4. Cumulative Year 2035 plus Project traffic conditions with proposed mitigation measures (if any).

Weekday peak hours to be analyzed:

1. 7 - 9 AM peak hour
2. 4 - 6 PM peak hour

Study Intersections:

1. North Avenue / Orange Avenue
2. North Avenue / Project Driveway (limited right in, and right out access)
3. North Avenue / SR 99 SB Off-Ramp
4. North Avenue / SR 99 NB On-Ramp
5. Cedar Avenue / SR 99 NB Off-Ramp
6. Cedar Avenue / SR 99 SB On-Ramp

Queuing analysis is included in the proposed scope of work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left-turn and right-turn lanes at all study intersections.

Study Segments:

1. None

Project Only Trip Assignment to the Following State Facilities:

1. None

Trip Generation

Table I presents the trip generation for the proposed Project pursuant to the 9th Edition of the Trip Generation Manual with trip generation rates for a Gasoline/Service Station with Convenience Market, and the Fast-Food Restaurants with Drive-Through Windows. At build-out, the Project is estimated to generate a maximum of 5,907 daily trips, 456 AM peak hour trips and 439 PM peak hour trips.

Table I: Project Only Trip Generation

Land Use (ITE Code)	Size	Unit	Daily		AM Peak Hour						PM Peak Hour					
			Rate	Total	Trip Rate	In %	Out %	In	Out	Total	Trip Rate	In %	Out %	In	Out	Total
Gasoline/Service Station with Convenience Market (945)	18	f.p.	162.78	2,930	10.16	50	50	92	92	183	13.51	50	50	122	122	243
Fast-Food Restaurant with Drive-Through Window (934)	6.000	k.s.f.	496.12	2,977	45.42	51	49	139	134	273	32.65	52	48	102	94	196
Total Project Trips				**5,907**				**231**	**226**	**456**				**224**	**216**	**439**

Note: f.p. = Fueling Positions
k.s.f. = Thousand Square Feet

Access to the Project

Access to and from the Project site is from three points. One of the proposed access points is located along the north side of North Avenue at a point approximately 360 feet east of Orange Avenue and is proposed to be limited to right-in, and right-out access. The second and third proposed access points are located on the south side of a private street approximately 180 feet north of North Avenue. These two driveways are to be located approximately 120 and 270 feet east of Orange Avenue. The site plan, which can be found in Exhibit B, illustrates the proposed access points.

Near Term Projects to be Included

Based on our local knowledge of the study area, JLB proposes to include projects in the vicinity of the proposed Project under the Near Term plus Project Analysis. The projects proposed to be included in the Near Term Scenario are:

Project Name	General Location
1. 4780 South Maple Avenue Rezone	NE corner of Maple/American
2. 2778 South Willow Avenue	NW corner of Annandale/Willow
3. G3 Development	NW corner of Central/East
4. Amazon	NW corner of Central/Orange
5. Orange Avenue Industrial Park	North side of Central between Orange/Cedar

Other Near Term Projects the City of Fresno, County of Fresno or Caltrans has knowledge of and for which it is anticipated that said project(s) is/are projected to be whole or partially built by the Near Term Project Year 2022, the City of Fresno, County of Fresno or Caltrans, as appropriate, would need to provide JLB with near term project details. Near term project details include project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The above scope of work is based on our understanding of this Project and our experience with similar Traffic Impact Analysis Projects. In the absence of comments by November 21, 2017, it will be assumed that the above scope of work is acceptable to the agency(ies) that have not submitted any comments to the proposed TIA Draft Scope of Work.

If you have any questions or require additional information, please contact me by phone at (559) 570-8991 or by e-mail at jbenavides@jlbtraffic.com.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

cc: Tong Xiong, County of Fresno
Harpreet Kooner, County of Fresno
David Padilla, Caltrans

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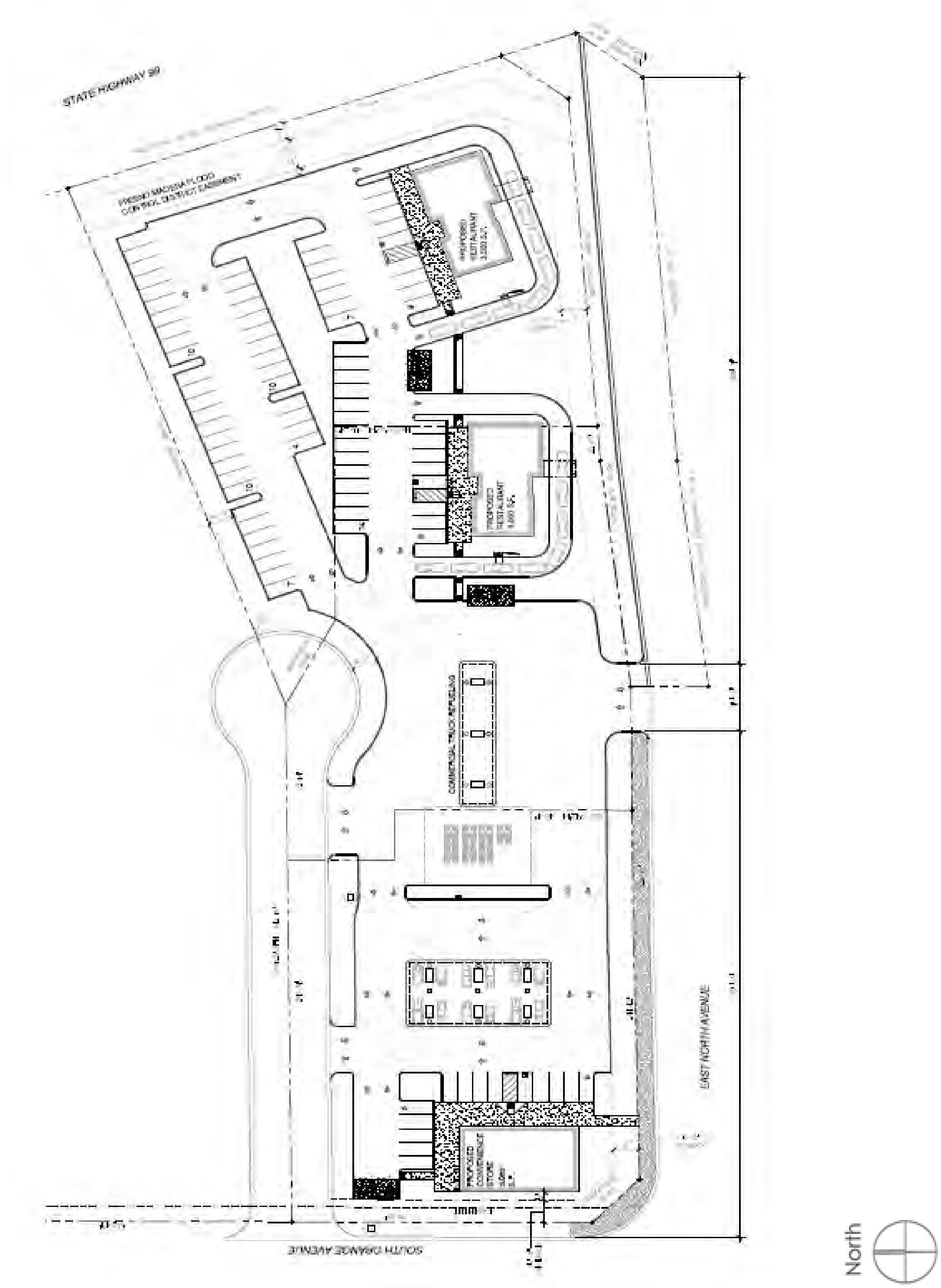
Exhibit A – Aerial

Exhibit B – Site Plan



Jose Benavides

From: Xiong, Tong (PWP) <tonxiong@co.fresno.ca.us>
Sent: Tuesday, November 21, 2017 2:42 PM
To: Jose Benavides
Cc: Kooner, Harpreet; Daniele, Frank
Subject: RE: North and Orange Avenue TIA

Good afternoon Jose,

Thanks for giving us the opportunity to review the scoping document for the gas station project located at the northeast corner of Orange Avenue and North Avenue. Fresno County Transportation Planning is in agreement with the content of the scope of work and requests the intersection of North Avenue and Chestnut Avenue and the study scenario Cumulative Year 2035 No Project be included in the study. Please be advised that Fresno County Transportation planning may request additional intersections to be studied once we have received a trip distribution figure for review.

Regards,

Tong Xiong
Design Division
Department of Public Works and Planning
2220 Tulare Street, 7th Floor
Fresno, CA 93721
Tel: (559) 600-4532
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Please consider the environment before printing this e-mail

From: Jose Benavides [mailto:jbenavides@jlbtraffic.com]
Sent: Tuesday, October 31, 2017 5:27 PM
To: Jill Gormley (Jill.Gormley@fresno.gov) <Jill.Gormley@fresno.gov>
Cc: Xiong, Tong (PWP) <tonxiong@co.fresno.ca.us>; Kooner, Harpreet <HKooner@co.fresno.ca.us>; David Padilla (dave_padilla@dot.ca.gov) <dave_padilla@dot.ca.gov>; Javier Rios <jrios@jlbtraffic.com>; Susana Maciel <smaciel@jlbtraffic.com>
Subject: North and Orange Avenue TIA

County of Fresno

Internal Services Department (ISD) - IT Services

Service Desk 600-5900 (Help Desk)

CAUTION!!!

This email has been flagged as containing one or more attachments from an outside source.
Please check the senders email address carefully.
If you were not expecting to receive an email with attachments, please DO NOT open the file.
Forward the email to SPAM "SPAM@co.fresno.ca.us" and delete it.

Good afternoon,

Attached you will find a proposed scope of work for a project in the City of Fresno for your review and comment. If your agency has no comments let us know as well.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

JLB Traffic Engineering, Inc.

Traffic Engineering, Transportation Planning and Parking Solutions
Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Office: (559) 570-8991
Cell: (559) 694-6000
www.JLBtraffic.com

Jose Benavides

From:	Padilla, Dave@DOT <dave.padilla@dot.ca.gov>
Sent:	Tuesday, November 28, 2017 8:08 AM
To:	Jose Benavides; Jill Gormley (Jill.Gormley@fresno.gov)
Cc:	Javier Rios; Susana Maciel; Navarro, Michael@DOT
Subject:	RE: North and Orange Avenue TIA-Correction

Good Morning Jose,

The proposed scope of work for the traffic study appears to be satisfactory. Caltrans HDM Topic 504.8 indicates that driveways with right-in and right-out access can be permitted beyond 200 feet from a ramp intersection; however, further analysis will be needed in order to determine whether this is viable for existing conditions. In the future conditions the proposed driveway location may not meet access spacing. For the purpose of your analysis, I will forward you the PSR for this location in a separate email. It is also my understanding that access control may be purchased.

Thank you

David Padilla, Associate Transportation Planner
Office of Planning & Local Assistance
1352 W. Olive Avenue
Fresno, CA 93778-2616
Office: (559) 444-2493, Fax: (559) 445-5875
District 6

From: Jose Benavides [mailto:jbenavides@jlbtraffic.com]
Sent: Monday, November 27, 2017 11:26 AM
To: Jill Gormley (Jill.Gormley@fresno.gov) <Jill.Gormley@fresno.gov>
Cc: Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Javier Rios <jrios@jlbtraffic.com>; Susana Maciel <smaciel@jlbtraffic.com>
Subject: RE: North and Orange Avenue TIA

Good afternoon Jill and David,

I am following up with the two of you to inquire if you had any comments to the draft scope of work that we submitted on October 31. We would like to move forward with the analysis for submittal in the next few weeks. We already have comments from the County and they have requested that we add the intersection of North and Orange and that a 2035 No Project Scenario be added.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

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Office: (559) 570-8991
Cell: (559) 694-6000
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From: Jose Benavides
Sent: Tuesday, October 31, 2017 5:27 PM
To: Jill Gormley (Jill.Gormley@fresno.gov) <Jill.Gormley@fresno.gov>
Cc: 'Xiong, Tong (PWP)' <tonxiong@co.fresno.ca.us>; Harpreet Kooner (HKooner@co.fresno.ca.us) <HKooner@co.fresno.ca.us>; David Padilla (dave_padilla@dot.ca.gov) <dave_padilla@dot.ca.gov>; Javier Rios <jrios@jlbtraffic.com>; Susana Maciel <smaciel@jlbtraffic.com>
Subject: North and Orange Avenue TIA

Good afternoon,

Attached you will find a proposed scope of work for a project in the City of Fresno for your review and comment. If your agency has no comments let us know as well.

Sincerely,

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Office: (559) 570-8991
Cell: (559) 694-6000
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Jose Benavides

From: Jill Gormley <Jill.Gormley@fresno.gov>
Sent: Friday, December 8, 2017 9:26 AM
To: Jose Benavides
Cc: David Padilla (dave_padilla@dot.ca.gov); Javier Rios; Susana Maciel
Subject: RE: North and Orange Avenue TIA

Please add the intersection of Cedar/North to the analysis.

jmg

Appendix B: Traffic Counts

Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Precision Civil Engineering, Inc.
1234 "O" Street
Fresno, CA 93721

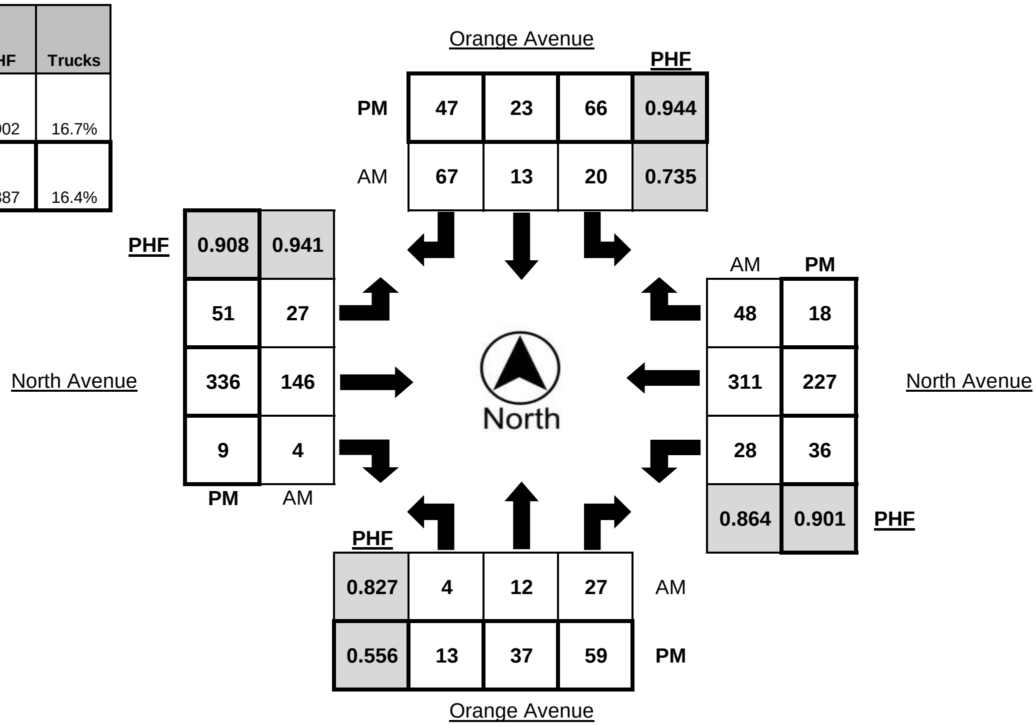
LOCATION	Orange Avenue @ North Avenue	**LATITUDE**	36.692431°
COUNTY	Fresno	**LONGITUDE**	-119.763730°
COLLECTION DATE	Thursday, April 28, 2016	**WEATHER**	Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	2	2	1	7	2	11	1	11	34	0	14	12	75	14	13
7:15 AM - 7:30 AM	2	4	7	0	3	2	15	1	9	34	0	8	4	78	13	13
7:30 AM - 7:45 AM	0	3	5	1	8	4	10	5	4	39	1	13	8	78	8	17
7:45 AM - 8:00 AM	1	3	9	2	4	3	17	2	4	42	1	9	11	89	12	16
8:00 AM - 8:15 AM	1	2	6	2	5	4	25	5	10	31	2	10	5	66	15	14
8:15 AM - 8:30 AM	2	2	7	6	6	6	16	8	6	40	2	13	5	70	9	16
8:30 AM - 8:45 AM	0	6	4	1	8	5	7	4	8	50	1	11	2	52	9	21
8:45 AM - 9:00 AM	0	8	7	2	8	2	7	2	16	53	2	9	6	49	11	12
TOTAL	**6**	**30**	**47**	**15**	**49**	**28**	**108**	**28**	**68**	**323**	**9**	**87**	**53**	**557**	**91**	**122**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	5	4	7	1	19	4	9	4	15	92	2	17	6	68	4	23
4:15 PM - 4:30 PM	3	4	5	0	12	10	14	7	8	77	2	13	20	53	5	20
4:30 PM - 4:45 PM	1	20	28	1	18	3	13	4	17	86	4	14	8	56	6	21
4:45 PM - 5:00 PM	4	9	19	0	17	6	11	4	11	81	1	8	2	50	3	14
5:00 PM - 5:15 PM	1	13	17	1	19	4	16	4	22	77	1	15	7	46	4	14
5:15 PM - 5:30 PM	2	4	7	0	17	6	17	3	14	65	5	8	2	52	5	9
5:30 PM - 5:45 PM	1	1	9	0	13	5	10	2	8	50	2	12	7	49	2	15
5:45 PM - 6:00 PM	0	2	7	0	7	4	11	3	7	50	1	6	3	25	3	7
TOTAL	**17**	**57**	**99**	**3**	**122**	**42**	**101**	**31**	**102**	**578**	**18**	**93**	**55**	**399**	**32**	**123**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	4	12	27	5	20	13	67	13	27	146	4	40	28	311	48	60
4:00 PM - 5:00 PM	13	37	59	2	66	23	47	19	51	336	9	52	36	227	18	78

	PHF	Trucks
AM	0.902	16.7%
PM	0.887	16.4%



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Precision Civil Engineering, Inc.
1234 "O" Street
Fresno, CA 93721

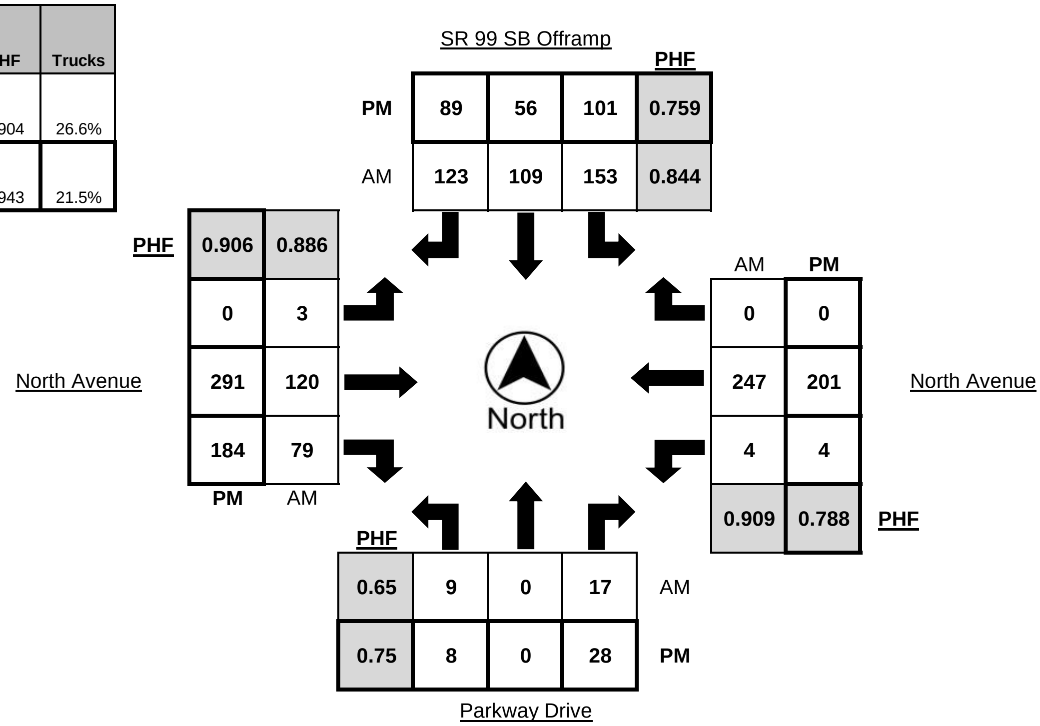
LOCATION North Avenue @ SR 99 SB Offramp / Parkway Dr
LATITUDE 36.692375°
COUNTY Fresno
LONGITUDE -119.760721°
COLLECTION DATE Thursday, April 28, 2016
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:00 AM - 7:15 AM	4	0	3	3	47	21	30	21	0	15	26	17	0	66	0	12
7:15 AM - 7:30 AM	0	0	2	2	32	17	25	14	0	30	17	11	1	69	0	11
7:30 AM - 7:45 AM	2	0	1	2	41	25	26	11	0	31	19	18	0	69	0	17
7:45 AM - 8:00 AM	3	0	3	2	44	28	42	28	0	32	21	16	0	66	0	9
8:00 AM - 8:15 AM	1	0	6	4	32	37	29	23	0	22	20	15	3	57	0	19
8:15 AM - 8:30 AM	3	0	7	3	36	19	26	24	3	35	19	24	1	55	0	15
8:30 AM - 8:45 AM	5	0	5	5	39	16	16	20	0	39	23	16	1	38	0	17
8:45 AM - 9:00 AM	2	0	5	4	44	23	28	24	0	46	23	14	1	39	0	8
TOTAL	**20**	**0**	**32**	**25**	**315**	**186**	**222**	**165**	**3**	**250**	**168**	**131**	**7**	**459**	**0**	**108**

	Northbound				Southbound				Eastbound				Westbound			
Time	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
4:00 PM - 4:15 PM	3	0	5	0	29	15	19	17	0	63	56	19	3	62	0	19
4:15 PM - 4:30 PM	1	0	7	1	31	19	31	23	0	66	36	14	0	54	0	24
4:30 PM - 4:45 PM	0	0	8	1	21	7	24	20	0	87	44	12	1	43	0	13
4:45 PM - 5:00 PM	4	0	8	1	20	15	15	18	0	75	48	16	0	42	0	9
5:00 PM - 5:15 PM	5	0	14	2	18	8	12	17	0	68	47	21	1	35	0	13
5:15 PM - 5:30 PM	1	0	7	2	16	8	12	9	0	57	33	7	0	47	0	13
5:30 PM - 5:45 PM	0	0	1	0	14	7	11	6	0	40	29	12	0	47	0	17
5:45 PM - 6:00 PM	2	0	7	2	15	6	7	4	0	46	20	8	0	20	0	5
TOTAL	**16**	**0**	**57**	**9**	**164**	**85**	**131**	**114**	**0**	**502**	**313**	**109**	**5**	**350**	**0**	**113**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**	**Left**	**Thru**	**Right**	**Trucks**
7:30 AM - 8:30 AM	9	0	17	11	153	109	123	86	3	120	79	73	4	247	0	60
4:00 PM - 5:00 PM	8	0	28	3	101	56	89	78	0	291	184	61	4	201	0	65

	PHF	Trucks
AM	0.904	26.6%
PM	0.943	21.5%



Turning Movement Report

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Hanford, CA 93230

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Prepared For:
Precision Civil Engineering, Inc.
1234 "O" Street
Fresno, CA 93721

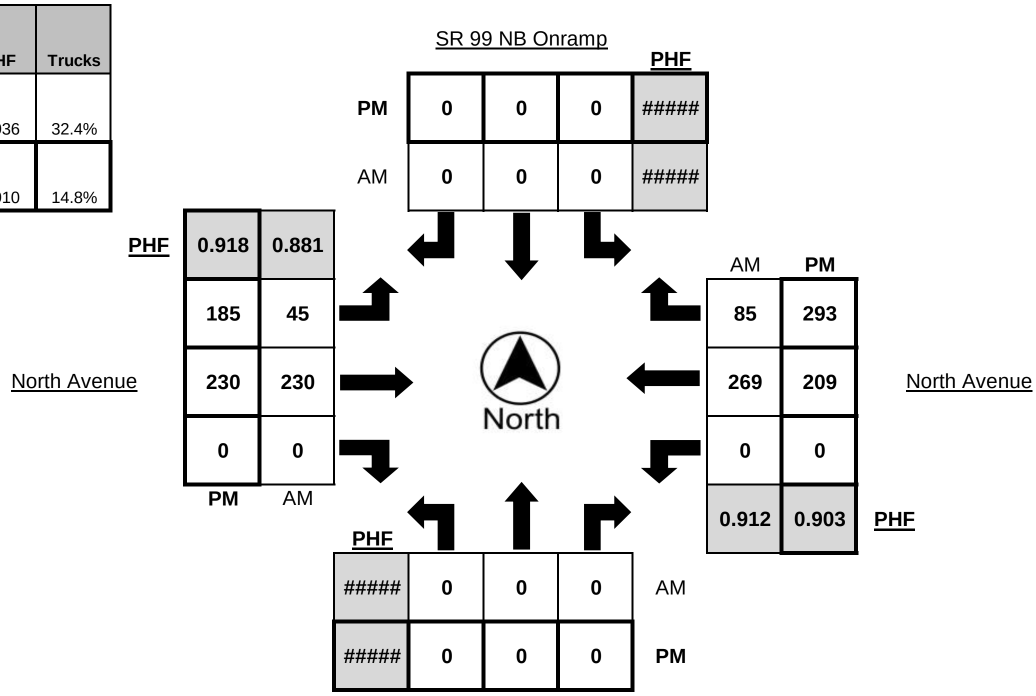
LOCATION North Avenue @ SR 99 NB Onramp
LATITUDE 36.692391°
COUNTY Fresno
LONGITUDE -119.757932°
COLLECTION DATE Thursday, April 28, 2016
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	0	0	0	0	0	0	0	18	44	0	10	0	64	13	22
7:15 AM - 7:30 AM	0	0	0	0	0	0	0	0	9	56	0	20	0	68	22	26
7:30 AM - 7:45 AM	0	0	0	0	0	0	0	0	14	57	0	22	0	71	26	26
7:45 AM - 8:00 AM	0	0	0	0	0	0	0	0	9	69	0	24	0	68	18	26
8:00 AM - 8:15 AM	0	0	0	0	0	0	0	0	13	48	0	28	0	62	19	32
8:15 AM - 8:30 AM	0	0	0	0	0	0	0	0	12	69	0	31	0	54	17	31
8:30 AM - 8:45 AM	0	0	0	0	0	0	0	0	15	68	0	22	0	41	24	32
8:45 AM - 9:00 AM	0	0	0	0	0	0	0	0	14	78	0	25	0	42	21	45
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**104**	**489**	**0**	**182**	**0**	**470**	**160**	**240**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	0	0	0	0	0	0	0	52	48	0	16	0	58	62	14
4:15 PM - 4:30 PM	0	0	0	0	0	0	0	0	48	53	0	15	0	53	71	18
4:30 PM - 4:45 PM	0	0	0	0	0	0	0	0	52	61	0	18	0	53	86	22
4:45 PM - 5:00 PM	0	0	0	0	0	0	0	0	33	68	0	12	0	45	74	21
5:00 PM - 5:15 PM	0	0	0	0	0	0	0	0	53	52	0	18	0	35	77	11
5:15 PM - 5:30 PM	0	0	0	0	0	0	0	0	24	58	0	12	0	46	50	15
5:30 PM - 5:45 PM	0	0	0	0	0	0	0	0	20	41	0	15	0	44	46	19
5:45 PM - 6:00 PM	0	0	0	0	0	0	0	0	26	39	0	11	0	24	33	5
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**308**	**420**	**0**	**117**	**0**	**358**	**499**	**125**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:15 AM - 8:15 AM	0	0	0	0	0	0	0	0	45	230	0	94	0	269	85	110
4:00 PM - 5:00 PM	0	0	0	0	0	0	0	0	185	230	0	61	0	209	293	75

	PHF	Trucks
AM	0.936	32.4%
PM	0.910	14.8%



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(559) 570-8991

Traffic Engineering, Transportation Planning & Parking Solutions

www.JLBtraffic.com

File Name : North at Cedar 12132017
Site Code : 00121317
Start Date : 12/13/2017
Page No : 1

Groups Printed- Unshifted

	Cedar Ave Southbound					North Ave Westbound					Cedar Ave Northbound					North Ave Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	1	9	4	0	14	6	30	3	0	39	52	7	7	0	66	6	43	3	0	52	171
07:15 AM	1	5	6	0	12	7	38	1	0	46	59	5	3	0	67	6	45	1	0	52	177
07:30 AM	0	6	2	0	8	10	59	2	0	71	50	5	11	0	66	3	53	1	0	57	202
07:45 AM	1	7	1	0	9	5	63	1	0	69	93	9	11	0	113	4	66	5	0	75	266
Total	3	27	13	0	43	28	190	7	0	225	254	26	32	0	312	19	207	10	0	236	816
08:00 AM	3	7	5	0	15	5	15	12	0	32	56	6	14	0	76	16	41	9	0	66	189
08:15 AM	1	6	6	0	13	12	36	10	0	58	52	7	5	0	64	6	43	7	0	56	191
08:30 AM	3	5	3	0	11	6	72	4	0	82	50	7	10	0	67	7	40	3	0	50	210
08:45 AM	1	7	3	0	11	7	51	2	0	60	45	5	8	0	58	4	52	5	0	61	190
Total	8	25	17	0	50	30	174	28	0	232	203	25	37	0	265	33	176	24	0	233	780
******																					
04:00 PM	1	5	9	0	15	10	79	2	0	91	69	11	13	0	93	0	55	3	0	58	257
04:15 PM	5	3	10	0	18	13	66	0	0	79	55	12	9	0	76	5	68	1	0	74	247
04:30 PM	1	3	5	0	9	8	89	3	0	100	58	11	21	0	90	2	61	1	0	64	263
04:45 PM	3	3	5	0	11	5	71	2	0	78	32	3	9	0	44	3	55	0	0	58	191
Total	10	14	29	0	53	36	305	7	0	348	214	37	52	0	303	10	239	5	0	254	958
05:00 PM	7	6	2	0	15	12	73	1	0	86	35	6	13	0	54	0	72	0	0	72	227
05:15 PM	1	1	6	0	8	9	42	5	0	56	34	8	6	0	48	7	46	3	0	56	168
05:30 PM	3	3	4	0	10	9	49	4	0	62	36	12	9	0	57	3	44	4	0	51	180
05:45 PM	4	2	3	0	9	4	50	3	0	57	25	4	10	0	39	3	34	0	0	37	142
Total	15	12	15	0	42	34	214	13	0	261	130	30	38	0	198	13	196	7	0	216	717
Grand Total	36	78	74	0	188	128	883	55	0	1066	801	118	159	0	1078	75	818	46	0	939	3271
Apprch %	19.1	41.5	39.4	0		12	82.8	5.2	0		74.3	10.9	14.7	0		8	87.1	4.9	0		
Total %	1.1	2.4	2.3	0	5.7	3.9	27	1.7	0	32.6	24.5	3.6	4.9	0	33	2.3	25	1.4	0	28.7	

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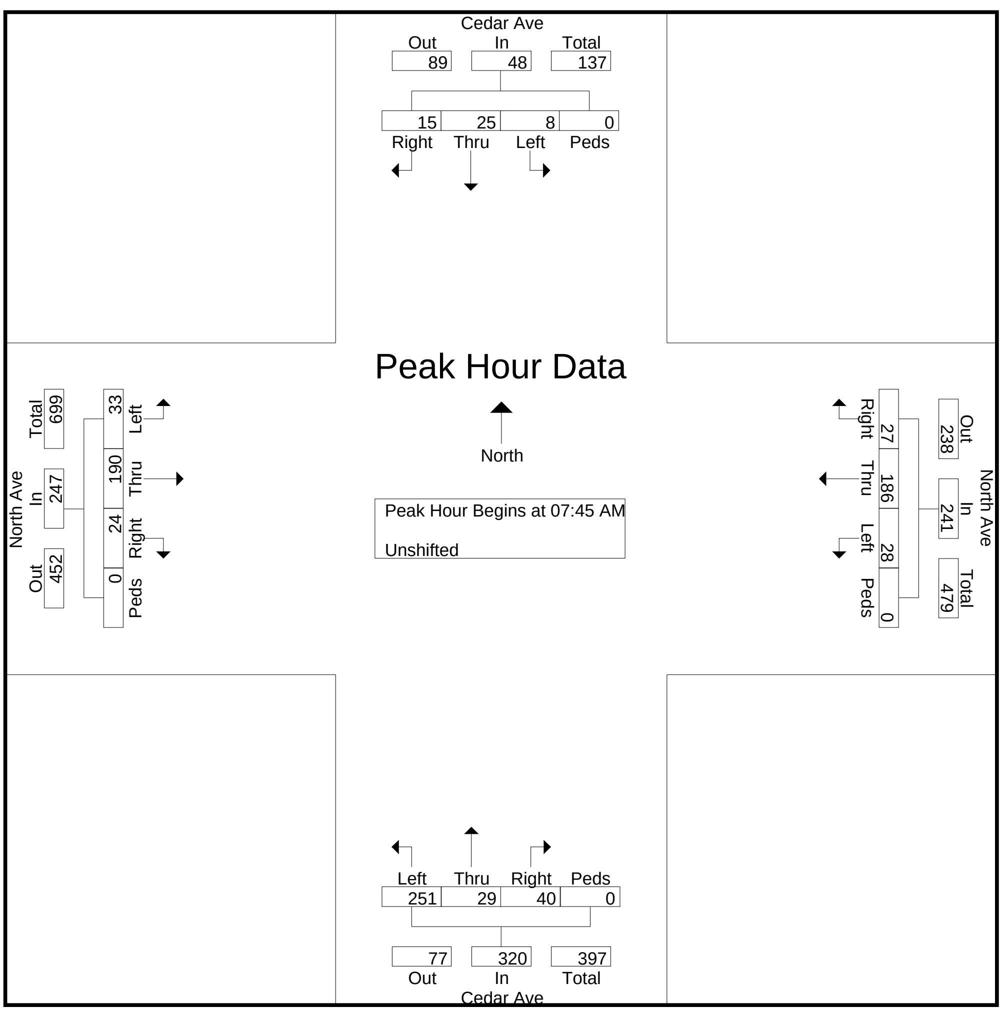
File Name : North at Cedar 12132017
Site Code : 00121317
Start Date : 12/13/2017
Page No : 2

	Cedar Ave Southbound					North Ave Westbound					Cedar Ave Northbound					North Ave Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	**7**	1	0	9	5	63	1	0	69	**93**	**9**	11	0	**113**	4	**66**	5	0	**75**	**266**
08:00 AM	**3**	7	5	0	**15**	5	15	**12**	0	32	56	6	**14**	0	76	**16**	41	**9**	0	66	189
08:15 AM	1	6	**6**	0	13	**12**	36	10	0	58	52	7	5	0	64	6	43	7	0	56	191
08:30 AM	3	5	3	0	11	6	**72**	4	0	**82**	50	7	10	0	67	7	40	3	0	50	210
Total Volume	8	25	15	0	48	28	186	27	0	241	251	29	40	0	320	33	190	24	0	247	856
% App. Total	16.7	52.1	31.2	0		11.6	77.2	11.2	0		78.4	9.1	12.5	0		13.4	76.9	9.7	0		
PHF	.667	.893	.625	.000	.800	.583	.646	.563	.000	.735	.675	.806	.714	.000	.708	.516	.720	.667	.000	.823	.805



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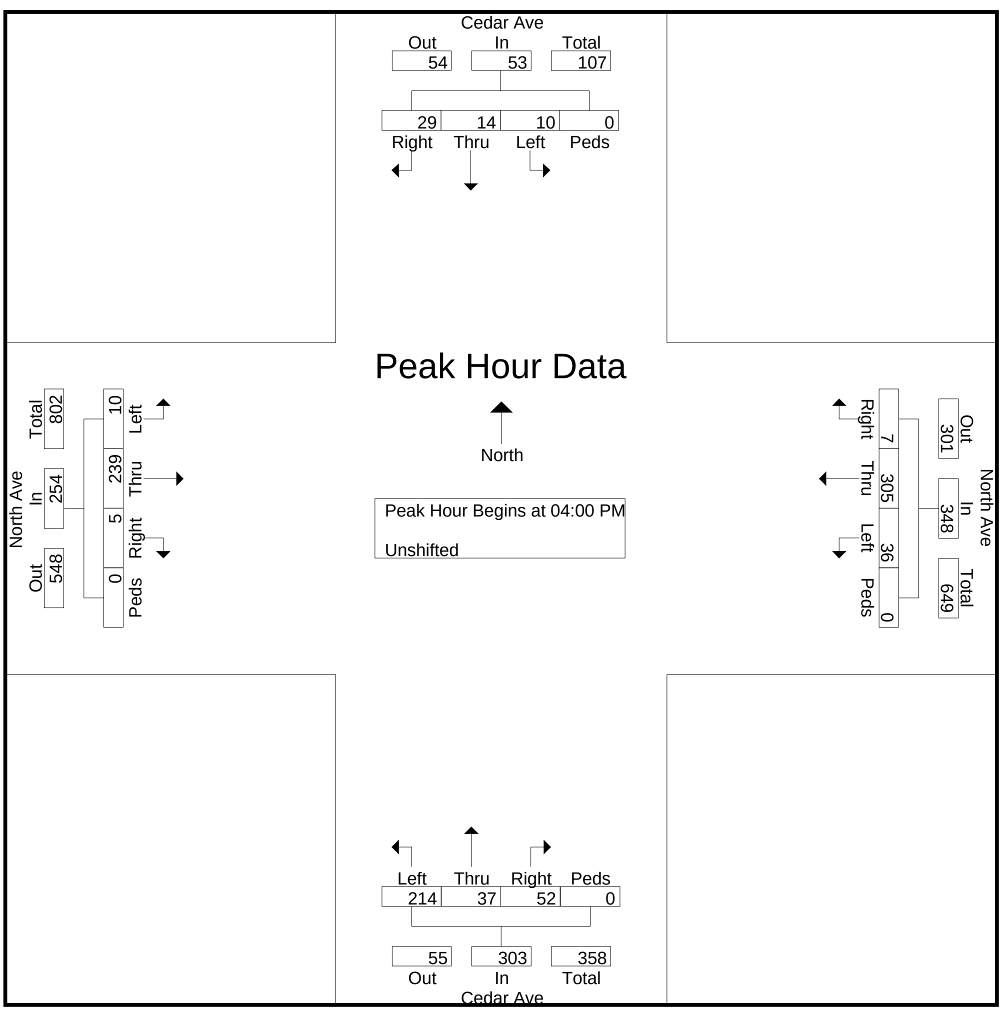
File Name : North at Cedar 12132017
Site Code : 00121317
Start Date : 12/13/2017

	Cedar Ave Southbound					North Ave Westbound					Cedar Ave Northbound					North Ave Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	**5**	9	0	15	10	79	2	0	91	**69**	11	13	0	**93**	0	55	**3**	0	58	257
04:15 PM	**5**	3	**10**	0	**18**	**13**	66	0	0	79	55	**12**	9	0	76	**5**	**68**	1	0	**74**	247
04:30 PM	1	3	5	0	9	8	**89**	**3**	0	**100**	58	11	**21**	0	90	2	61	1	0	64	**263**
04:45 PM	3	3	5	0	11	5	71	2	0	78	32	3	9	0	44	3	55	0	0	58	191
Total Volume	10	14	29	0	53	36	305	7	0	348	214	37	52	0	303	10	239	5	0	254	958
% App. Total	18.9	26.4	54.7	0		10.3	87.6	2	0		70.6	12.2	17.2	0		3.9	94.1	2	0		
PHF	.500	.700	.725	.000	.736	.692	.857	.583	.000	.870	.775	.771	.619	.000	.815	.500	.879	.417	.000	.858	.911



JLB Traffic Engineering, Inc.

516 W. Shaw Ave., Ste. 200

Fresno, CA 93704

(559) 570-8991

Traffic Engineering, Transportation Planning & Parking Solutions

www.JLBtraffic.com

File Name : 5 North at Chestnut
Site Code : 00000000
Start Date : 5/18/2016
Page No : 1

Groups Printed- Unshifted

	CHESTNUT Southbound					NORTH Westbound					CHESTNUT Northbound					NORTH Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	8	42	2	0	52	10	24	2	0	36	25	34	3	0	62	4	20	10	0	34	184
07:15 AM	10	69	8	0	87	9	25	10	0	44	27	45	9	0	81	3	19	12	0	34	246
07:30 AM	18	69	6	0	93	12	29	6	0	47	12	63	8	0	83	7	24	23	0	54	277
07:45 AM	20	89	8	0	117	24	39	10	0	73	28	72	13	0	113	1	23	10	2	36	339
Total	56	269	24	0	349	55	117	28	0	200	92	214	33	0	339	15	86	55	2	158	1046
08:00 AM	15	71	4	0	90	18	30	14	0	62	19	45	10	0	74	6	25	14	0	45	271
08:15 AM	11	55	6	0	72	11	25	7	0	43	20	62	6	0	88	4	20	12	0	36	239
08:30 AM	10	43	8	0	61	8	28	5	0	41	22	56	2	0	80	1	20	12	0	33	215
08:45 AM	10	66	5	0	81	6	33	7	0	46	21	48	6	0	75	8	21	14	0	43	245
Total	46	235	23	0	304	43	116	33	0	192	82	211	24	0	317	19	86	52	0	157	970
******																					
04:00 PM	6	63	9	0	78	10	31	16	0	57	29	112	14	0	155	10	33	18	0	61	351
04:15 PM	7	88	7	0	102	10	26	17	1	54	22	126	7	2	157	2	23	13	0	38	351
04:30 PM	8	79	1	0	88	13	20	24	1	58	11	124	16	0	151	4	34	22	1	61	358
04:45 PM	9	77	6	0	92	11	30	15	0	56	17	137	17	0	171	10	31	21	0	62	381
Total	30	307	23	0	360	44	107	72	2	225	79	499	54	2	634	26	121	74	1	222	1441
05:00 PM	5	79	6	0	90	11	37	20	0	68	18	116	8	0	142	6	37	23	1	67	367
05:15 PM	6	107	2	0	115	12	26	9	0	47	5	87	7	0	99	7	32	19	0	58	319
05:30 PM	8	68	3	0	79	13	29	20	1	63	12	75	10	0	97	9	27	9	0	45	284
05:45 PM	3	63	1	0	67	6	16	9	0	31	6	73	5	0	84	7	23	16	0	46	228
Total	22	317	12	0	351	42	108	58	1	209	41	351	30	0	422	29	119	67	1	216	1198
Grand Total	154	1128	82	0	1364	184	448	191	3	826	294	1275	141	2	1712	89	412	248	4	753	4655
Apprch %	11.3	82.7	6	0		22.3	54.2	23.1	0.4		17.2	74.5	8.2	0.1		11.8	54.7	32.9	0.5		
Total %	3.3	24.2	1.8	0	29.3	4	9.6	4.1	0.1	17.7	6.3	27.4	3	0	36.8	1.9	8.9	5.3	0.1	16.2	

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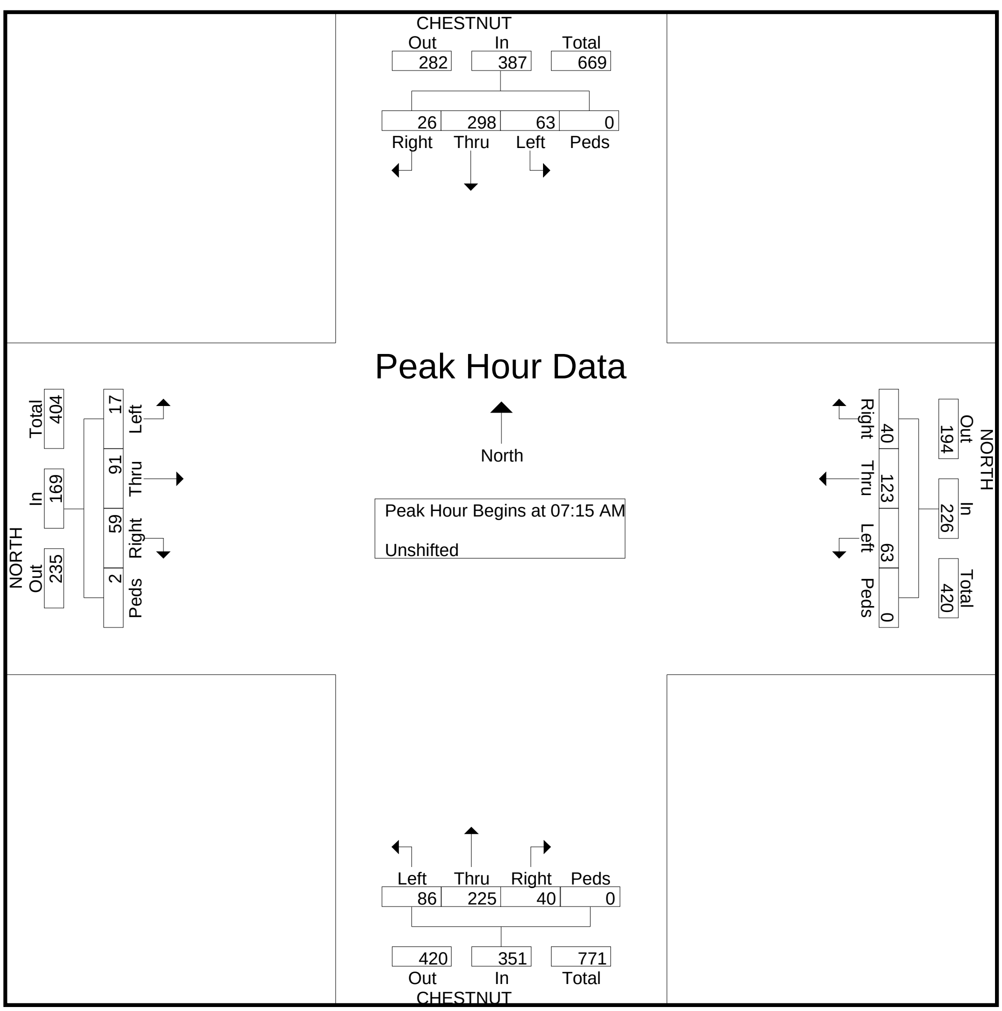
File Name : 5 North at Chestnut
Site Code : 00000000
Start Date : 5/18/2016

	CHESTNUT Southbound					NORTH Westbound					CHESTNUT Northbound					NORTH Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	10	69	**8**	0	87	9	25	10	0	44	27	45	9	0	81	3	19	12	0	34	246
07:30 AM	18	69	6	0	93	12	29	6	0	47	12	63	8	0	83	**7**	24	**23**	0	**54**	277
07:45 AM	**20**	**89**	8	0	**117**	**24**	**39**	10	0	**73**	**28**	**72**	**13**	0	**113**	1	23	10	**2**	36	**339**
08:00 AM	15	71	4	0	90	18	30	**14**	0	62	19	45	10	0	74	6	**25**	14	0	45	271
Total Volume	63	298	26	0	387	63	123	40	0	226	86	225	40	0	351	17	91	59	2	169	1133
% App. Total	16.3	77	6.7	0		27.9	54.4	17.7	0		24.5	64.1	11.4	0		10.1	53.8	34.9	1.2		
PHF	.788	.837	.813	.000	.827	.656	.788	.714	.000	.774	.768	.781	.769	.000	.777	.607	.910	.641	.250	.782	.836



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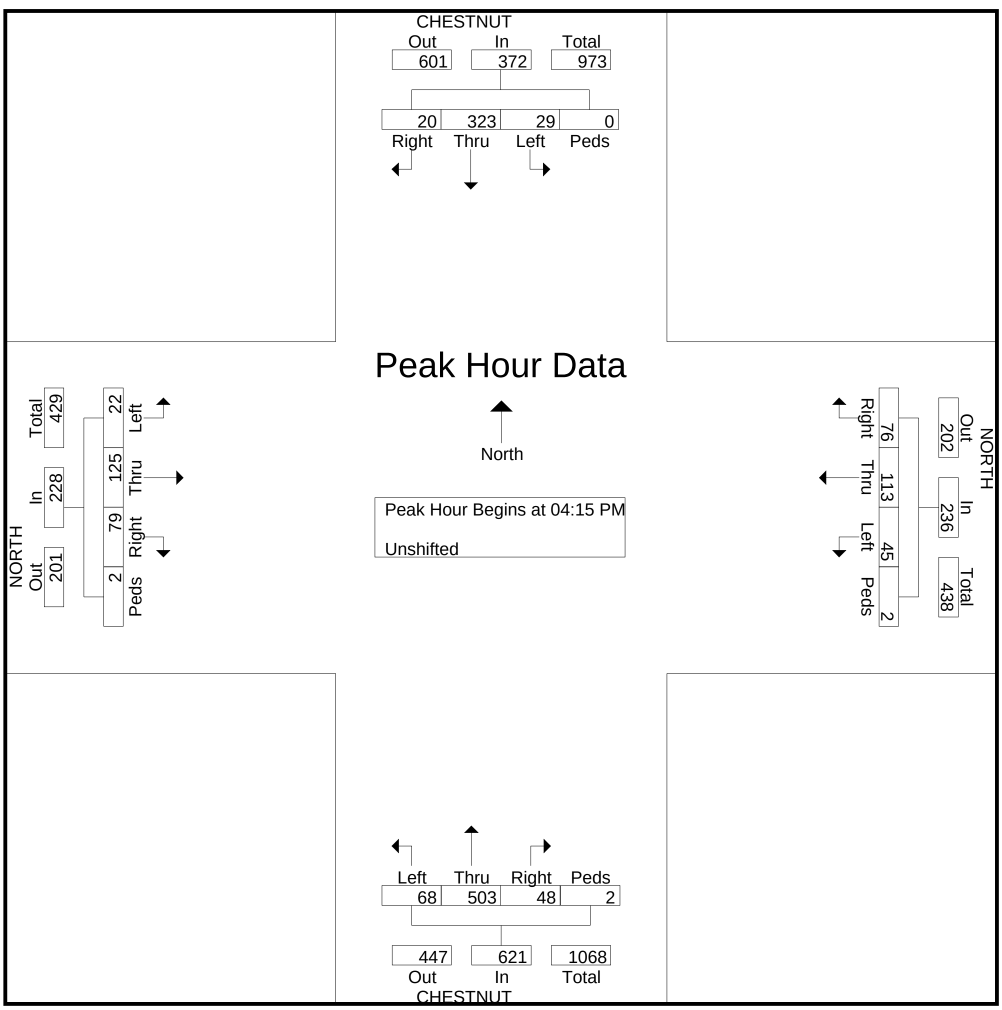
File Name : 5 North at Chestnut
Site Code : 00000000
Start Date : 5/18/2016

	CHESTNUT Southbound					NORTH Westbound					CHESTNUT Northbound					NORTH Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	7	**88**	**7**	0	**102**	10	26	17	**1**	54	**22**	126	7	**2**	157	2	23	13	0	38	351
04:30 PM	8	79	1	0	88	**13**	20	**24**	1	58	11	124	16	0	151	4	34	22	**1**	61	358
04:45 PM	**9**	77	6	0	92	11	30	15	0	56	17	**137**	**17**	0	**171**	**10**	31	21	0	62	**381**
05:00 PM	5	79	6	0	90	11	**37**	20	0	**68**	18	116	8	0	142	6	**37**	**23**	1	**67**	367
Total Volume	29	323	20	0	372	45	113	76	2	236	68	503	48	2	621	22	125	79	2	228	1457
% App. Total	7.8	86.8	5.4	0		19.1	47.9	32.2	0.8		11	81	7.7	0.3		9.6	54.8	34.6	0.9		
PHF	.806	.918	.714	.000	.912	.865	.764	.792	.500	.868	.773	.918	.706	.250	.908	.550	.845	.859	.500	.851	.956



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Precision Civil Engineering, Inc.
1234 "O" Street
Fresno, CA 93721

LOCATION Cedar Avenue @ SR 99 NB Offramp

LATITUDE 36.690605°

COUNTY Fresno

LONGITUDE -119.754691°

COLLECTION DATE Thursday, April 28, 2016

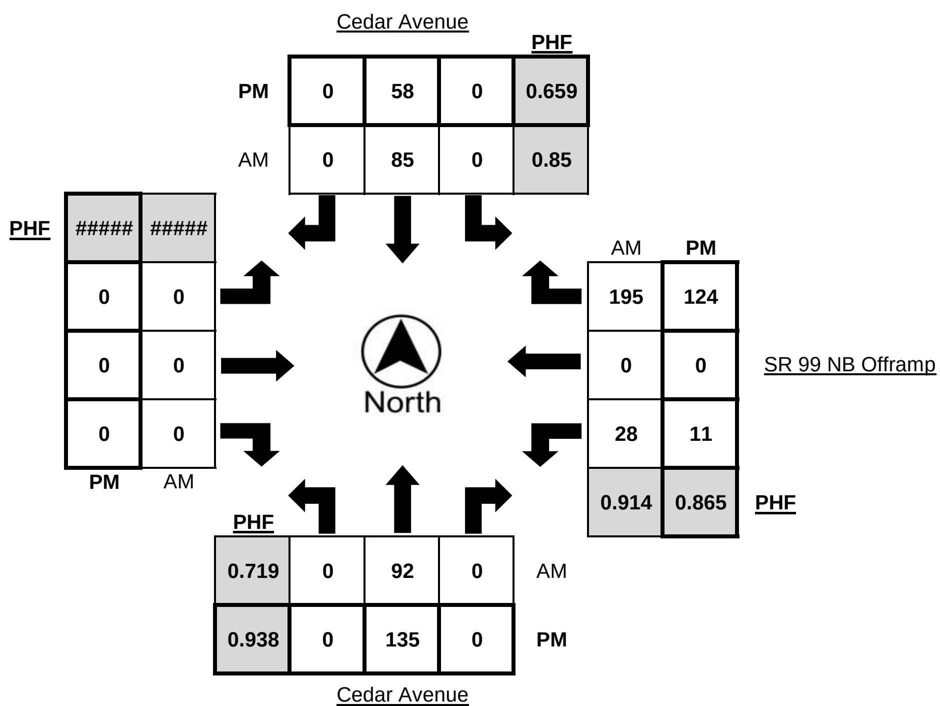
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	0	18	0	7	0	11	0	3	0	0	0	0	6	0	50	12
7:15 AM - 7:30 AM	0	8	0	2	0	11	0	5	0	0	0	0	10	0	47	16
7:30 AM - 7:45 AM	0	15	0	3	0	23	0	7	0	0	0	0	6	0	47	12
7:45 AM - 8:00 AM	0	26	0	6	0	25	0	3	0	0	0	0	6	0	55	13
8:00 AM - 8:15 AM	0	19	0	11	0	15	0	8	0	0	0	0	8	0	47	23
8:15 AM - 8:30 AM	0	32	0	18	0	22	0	8	0	0	0	0	8	0	46	19
8:30 AM - 8:45 AM	0	22	0	10	0	18	0	4	0	0	0	0	6	0	28	16
8:45 AM - 9:00 AM	0	28	0	12	0	19	0	9	0	0	0	0	9	0	31	13
TOTAL	**0**	**168**	**0**	**69**	**0**	**144**	**0**	**47**	**0**	**0**	**0**	**0**	**59**	**0**	**351**	**124**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	0	20	0	3	0	15	0	4	0	0	0	0	3	0	32	14
4:15 PM - 4:30 PM	0	32	0	4	0	22	0	8	0	0	0	0	3	0	29	15
4:30 PM - 4:45 PM	0	36	0	5	0	15	0	3	0	0	0	0	4	0	33	13
4:45 PM - 5:00 PM	0	35	0	3	0	9	0	0	0	0	0	0	3	0	36	13
5:00 PM - 5:15 PM	0	32	0	1	0	12	0	1	0	0	0	0	1	0	26	11
5:15 PM - 5:30 PM	0	30	0	1	0	10	0	1	0	0	0	0	2	0	24	12
5:30 PM - 5:45 PM	0	21	0	3	0	7	0	1	0	0	0	0	2	0	23	11
5:45 PM - 6:00 PM	0	17	0	0	0	8	0	2	0	0	0	0	2	0	15	5
TOTAL	**0**	**223**	**0**	**20**	**0**	**98**	**0**	**20**	**0**	**0**	**0**	**0**	**20**	**0**	**218**	**94**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:30 AM - 8:30 AM	0	92	0	38	0	85	0	26	0	0	0	0	28	0	195	67
4:15 PM - 5:15 PM	0	135	0	13	0	58	0	12	0	0	0	0	11	0	124	52

	PHF	Trucks
AM	0.893	32.8%
PM	0.932	23.5%



Metro Traffic Data Inc.
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800-975-6938 Phone/Fax
www.metrotrafficdata.com

Turning Movement Report

Prepared For:
Precision Civil Engineering, Inc.
1234 "O" Street
Fresno, CA 93721

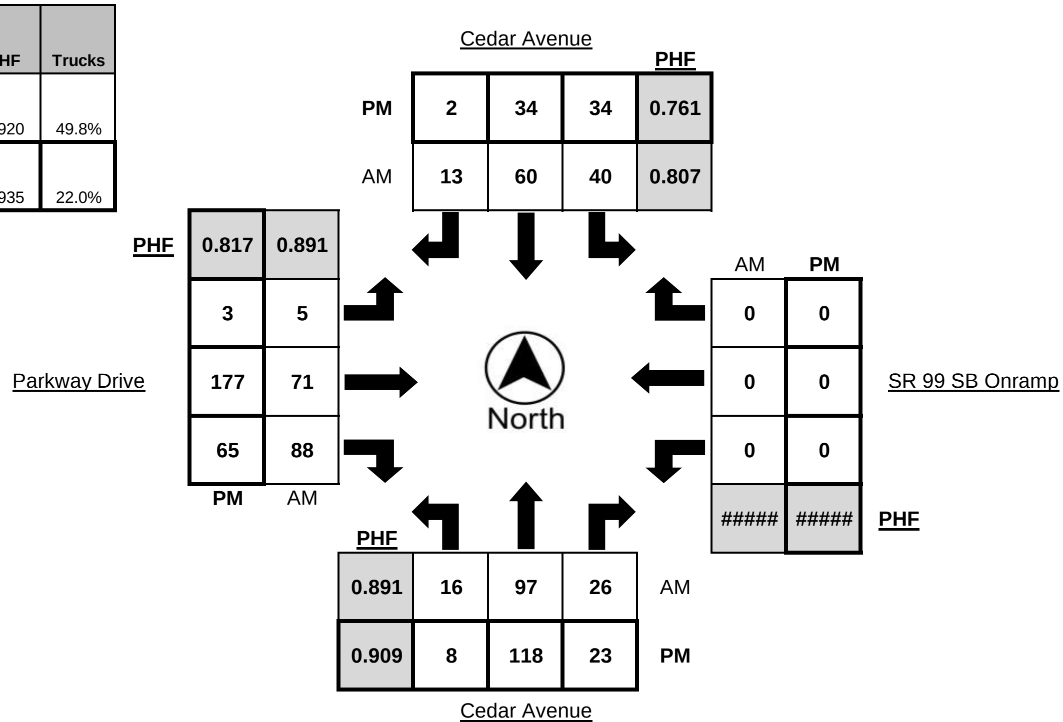
LOCATION Cedar Ave @ Parkway Drive / SR 99 SB Onramp
LATITUDE 36.687401°
COUNTY Fresno
LONGITUDE -119.754700°
COLLECTION DATE Thursday, April 28, 2016
WEATHER Clear

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:00 AM - 7:15 AM	2	21	3	12	4	9	4	7	0	32	35	30	0	0	0	0
7:15 AM - 7:30 AM	0	9	4	6	6	14	1	10	0	13	18	13	0	0	0	0
7:30 AM - 7:45 AM	1	13	6	11	11	17	1	10	0	19	21	10	0	0	0	0
7:45 AM - 8:00 AM	2	31	6	15	13	14	2	7	0	20	25	16	0	0	0	0
8:00 AM - 8:15 AM	5	15	7	13	11	11	3	12	0	20	26	23	0	0	0	0
8:15 AM - 8:30 AM	4	28	7	30	10	19	6	22	3	12	20	19	0	0	0	0
8:30 AM - 8:45 AM	5	23	6	21	6	16	2	11	2	19	17	18	0	0	0	0
8:45 AM - 9:00 AM	6	26	1	17	12	10	1	13	0	22	20	24	0	0	0	0
TOTAL	**25**	**166**	**40**	**125**	**73**	**110**	**20**	**92**	**5**	**157**	**182**	**153**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
Time	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
4:00 PM - 4:15 PM	2	22	6	6	7	10	1	5	0	58	17	18	0	0	0	0
4:15 PM - 4:30 PM	2	30	5	9	13	6	1	6	0	33	21	12	0	0	0	0
4:30 PM - 4:45 PM	2	35	4	7	11	12	0	9	3	42	15	8	0	0	0	0
4:45 PM - 5:00 PM	2	31	8	9	3	6	0	2	0	44	12	11	0	0	0	0
5:00 PM - 5:15 PM	3	35	1	1	9	4	0	1	0	44	12	16	0	0	0	0
5:15 PM - 5:30 PM	2	28	4	2	2	6	2	3	1	26	10	4	0	0	0	0
5:30 PM - 5:45 PM	2	14	2	4	4	7	1	3	1	33	9	8	0	0	0	0
5:45 PM - 6:00 PM	2	17	1	1	5	4	1	3	1	18	7	7	0	0	0	0
TOTAL	**17**	**212**	**31**	**39**	**54**	**55**	**6**	**32**	**6**	**298**	**103**	**84**	**0**	**0**	**0**	**0**

	Northbound				Southbound				Eastbound				Westbound			
PEAK HOUR	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks	Left	Thru	Right	Trucks
7:45 AM - 8:45 AM	16	97	26	79	40	60	13	52	5	71	88	76	0	0	0	0
4:00 PM - 5:00 PM	8	118	23	31	34	34	2	22	3	177	65	49	0	0	0	0

	PHF	Trucks
AM	0.920	49.8%
PM	0.935	22.0%



Appendix C: Traffic Modeling

November ~~9~~13, 2017

Kai Han, TE
Council of Fresno County Governments
2035 Tulare Street, Suite 201
Fresno, CA 93721

Via E-mail Only: khan@fresnocog.org

Subject: ***Revised Traffic Modeling Request for the Preparation of a Traffic Impact Analysis for a Commercial Development at the Northeast Corner of North Avenue and Orange Avenue in the City of Fresno (JLB Project 004-051)***

Dear Mr. Han,

JLB Traffic Engineering, Inc. (JLB) hereby requests traffic modeling for the Project described below. This modeling request is hereby revised to account for the change in the Project's proposed land use. The commercial development (Project) proposes to construct a gasoline/service station (12 fueling positions) with convenience market, a 2,000 square-foot coffee/donut shop with drive-through window, ~~a 1,500~~3,000 ~~square-foot~~square feet of fast-food restaurant without drive-through window, ~~a 1,500 square-foot high-turnover (sit-down) restaurant,~~ and 6,000 square feet of fast-food restaurant with drive-through windows at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. An aerial of the Project vicinity is shown in Exhibit A.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process.

Scenarios

The following scenarios are requested:

1. Base Year ~~2017~~ 2016 (with Link and TAZ modifications)
2. Base Year ~~2017~~ 2016 plus Project Select Zone (with Link and TAZ modifications)
3. Cumulative Year 2035 plus Project Select Zone (with Link and TAZ modifications)
4. Differences between model runs 3 and 1 above

Changes and/or additions to the Model Network or TAZ's

JLB reviewed the Fresno COG model network for the Base Year ~~2017~~ 2016 and Cumulative Year 2035. Based on this review, JLB requests the following link and TAZ network modifications. Details on the requested Link and TAZ modifications for Base Year ~~2017~~ 2016 and Cumulative Year 2035 are illustrated in Exhibit B.

LINK and TAZ ZONE MODIFICATIONS (For Base Year ~~2017~~ 2016 and Base Year ~~2017~~ 2016 plus Project Select Zone Scenarios)

1. Modify North Avenue to increase the westbound lanes between Nodes 2951 and 5294 to two lanes.

LINK and TAZ MODIFICATIONS (For Base Year ~~2017~~2016, Base Year ~~2017~~ 2016 plus Project Select Zone and Cumulative Year 2035 plus Project Select Zone Scenarios)

1. Modify TAZ 1493 as follows:
    a. Eliminate TAZ Connectors to Nodes 5295 and 5294.
    b. Create TAZ Connector to Orange Avenue (west).
2. Modify TAZ 1601 as follows:
    a. Relocate TAZ 1601
    b. Eliminate TAZ Connectors to Nodes 8102, 5294 and 8100.
    c. Create TAZ Connector to Orange Avenue (west).
    d. Create TAZ Connector to Parkway Drive (northeast).
3. Reduce the speed limit on Parkway Drive to 45 mph.

LINK and TAZ MODIFICATIONS (For Base Year ~~2017~~ 2016 plus Project Select Zone and Cumulative Year 2035 plus Project Select Zone Scenarios)

1. Create TAZ A bounded by Orange Avenue (west) and North Avenue (south). TAZ A shall have TAZ Connectors to Orange Avenue (north) and North Avenue (south).

LINK and TAZ ZONE MODIFICATIONS (For Cumulative Year 2035 plus Project Select Zone Scenario Only)

1. Modify Orange Avenue to reduce the ~~northbound~~ lanes ~~between Nodes 5295 and 3528~~south of Jensen Avenue to one lane in each direction.
2. Modify Cedar Avenue to reduce the lanes ~~between Nodes 2940 and 2962~~south of Golden State Boulevard to one lane in each direction.
3. Modify Parkway Drive as follows:
    a. Eliminate the roadway segment connection to North Avenue at Node 3692 approximately 1,000 feet southeast of North Avenue.
    b. Create a roadway segment connection to Orange Avenue (west) approximately 675 feet south of North Avenue.
        i. Name: Parkway Drive
        ii. Lanes: One in each direction
        iii. Speed: 45 mph
4. Eliminate the Cedar Avenue and State Route 99 ramps. These include the roadway segments between Nodes 3693 and 4529 and between Nodes 3695 and 3694.
5. Create North Avenue and State Route 99 ramps. These include the roadway segments extending from Node 3692 to Node 7026 and from Node 3690 to Node 7025.

TAZ A Project Only Trip Generation (For Base Year ~~2017~~ 2016 plus Project Select Zone and Cumulative Year 2035 plus Project Select Zone Scenarios)

Table I presents the trip generation for the proposed Project pursuant to the 10th Edition of the Trip Generation Manual with trip generation rates for a Gasoline/Service Station with Convenience Market, Coffee/Donut Shop with Drive-Through Window, Fast-Food Restaurant without Drive-Through Window~~,~~ ~~High-Turnover (Sit-Down) Restaurant~~, and Fast-Food Restaurant with Drive-Through Window. At build-out, the Project is estimated to generate a maximum of ~~7,618~~7,970 daily trips, ~~622~~ 644 AM peak hour trips and ~~509~~ 536 PM peak hour trips.

Table I: TAZ A Project Only Trip Generation

Land Use (ITE Code)	*Size*	*Unit*	*Daily*		*AM Peak Hour*						*PM Peak Hour*					
			Rate	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*	*Trip Rate*	*In %*	*Out %*	*In*	*Out*	*Total*
Gasoline/Service Station with Convenience Market (945)	12	f.p.	205.36	2,464	12.47	51	49	77	74	150	13.99	51	49	86	82	168
Coffee/Donut Shop with Drive-Through Window (937)	2.000	k.s.f.	820.38	1,641	88.99	51	49	91	87	178	43.38	50	50	44	43	87
Fast-Food Restaurant without Drive-Through Window (934)	~~1.500~~ 3.000	k.s.f.	346.23	~~519~~ 1,039	25.10	60	40	~~23~~ 45	~~15~~ 30	~~38~~ 75	28.34	50	50	~~22~~ 43	~~21~~ 42	~~43~~ 85
~~High-Turnover (Sit-Down) Restaurant (932)~~	~~1.500~~	~~k.s.f.~~	~~112.18~~	~~168~~	~~9.94~~	~~55~~	~~45~~	~~8~~	~~7~~	~~15~~	~~9.77~~	~~62~~	~~38~~	~~9~~	~~6~~	~~15~~
Fast-Food Restaurant with Drive-Through Window (934)	6.000	k.s.f.	470.95	2,826	40.19	51	49	123	118	241	32.67	52	48	102	94	196
Total Project Trips				**~~7,618~~ 7,970**				**~~322~~ 336**	**~~301~~ 309**	**~~622~~ 644**				**~~263~~ 275**	**~~246~~ 261**	**~~509~~ 536**

Note: f.p. = Fueling Positions
k.s.f. = Thousand Square Feet

Access to the Project

Access to and from the Project site is from two points. One of the access points is an existing access point located along the east side of Orange Avenue at a point approximately 250 feet north of North Avenue and is a full access. The second access point is a proposed access located on the north side of North Avenue at a point approximately 350 feet east of Orange Avenue and is proposed as a right-in, right-out only access.

Please invoice JLB Traffic Engineering, Inc. and reference JLB Project No. 004-051 on the invoice. If you have any questions or require additional information, please do not hesitate to contact me by phone at (559) 570-8991 or by e-mail at smaciel@JLBtraffic.com.

Sincerely,

Susana Maciel

Susana Maciel, EIT
Engineer I/II

CC: Jose Benavides, PE, TE, President
Muyi Zhou, Regional Planner

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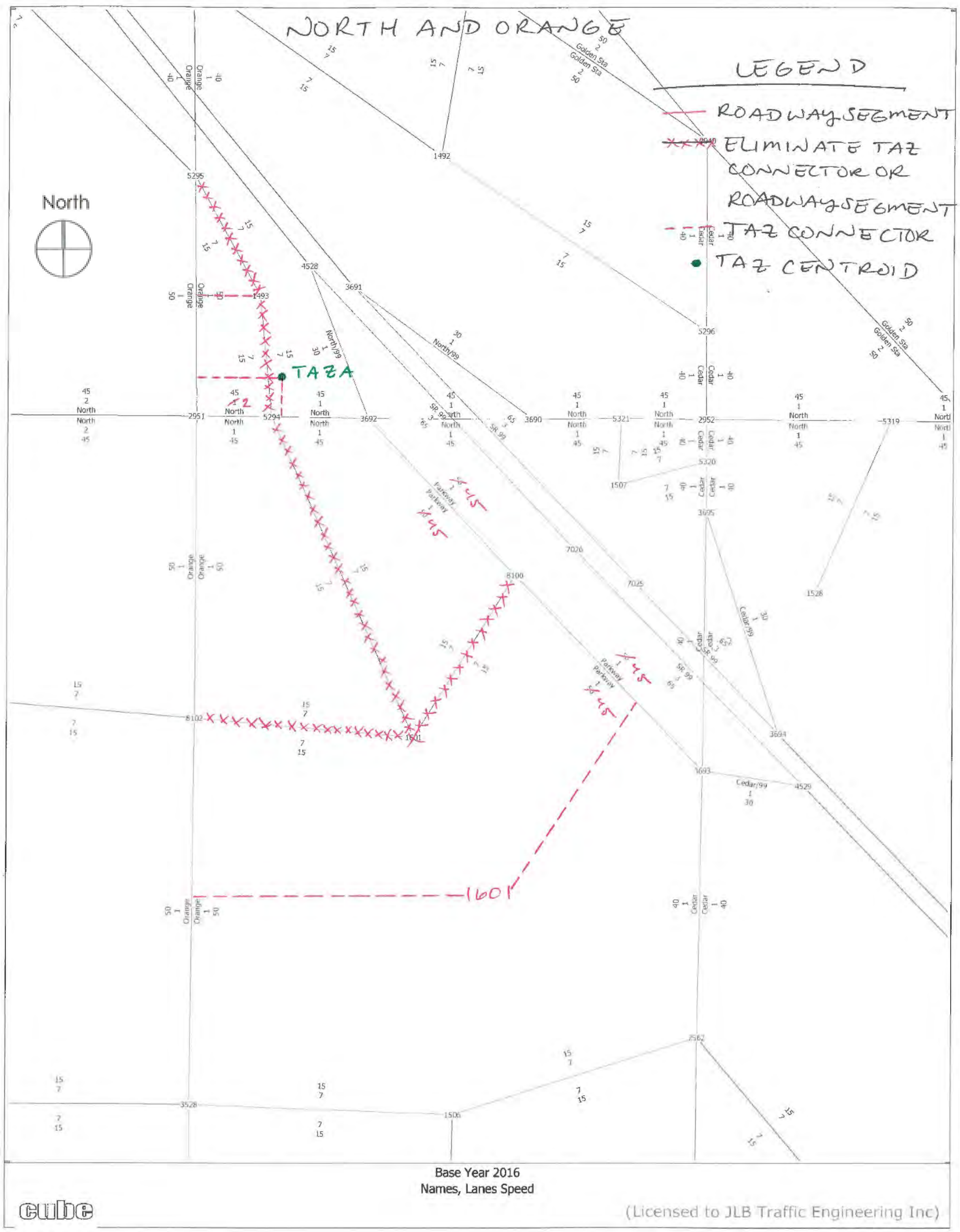
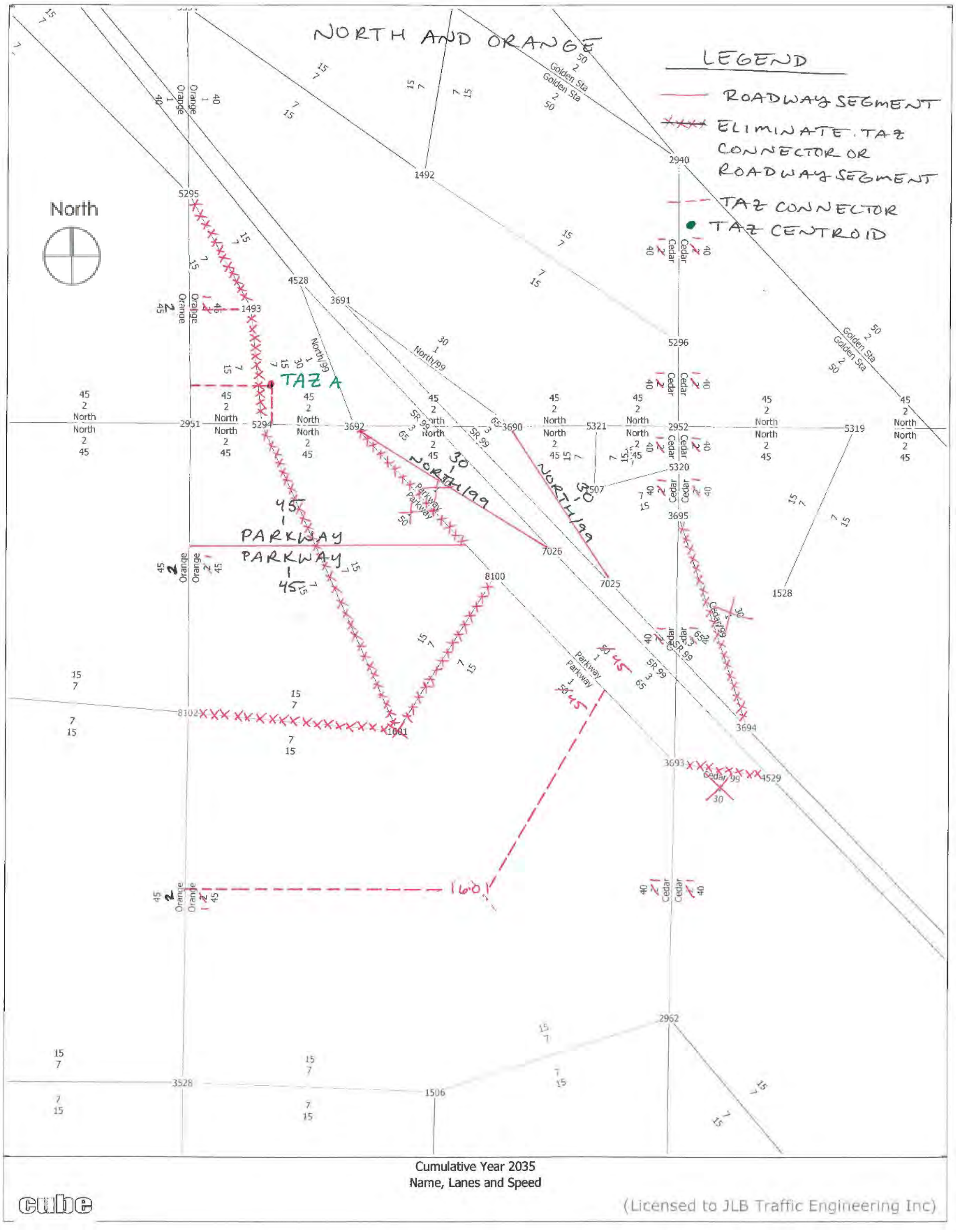
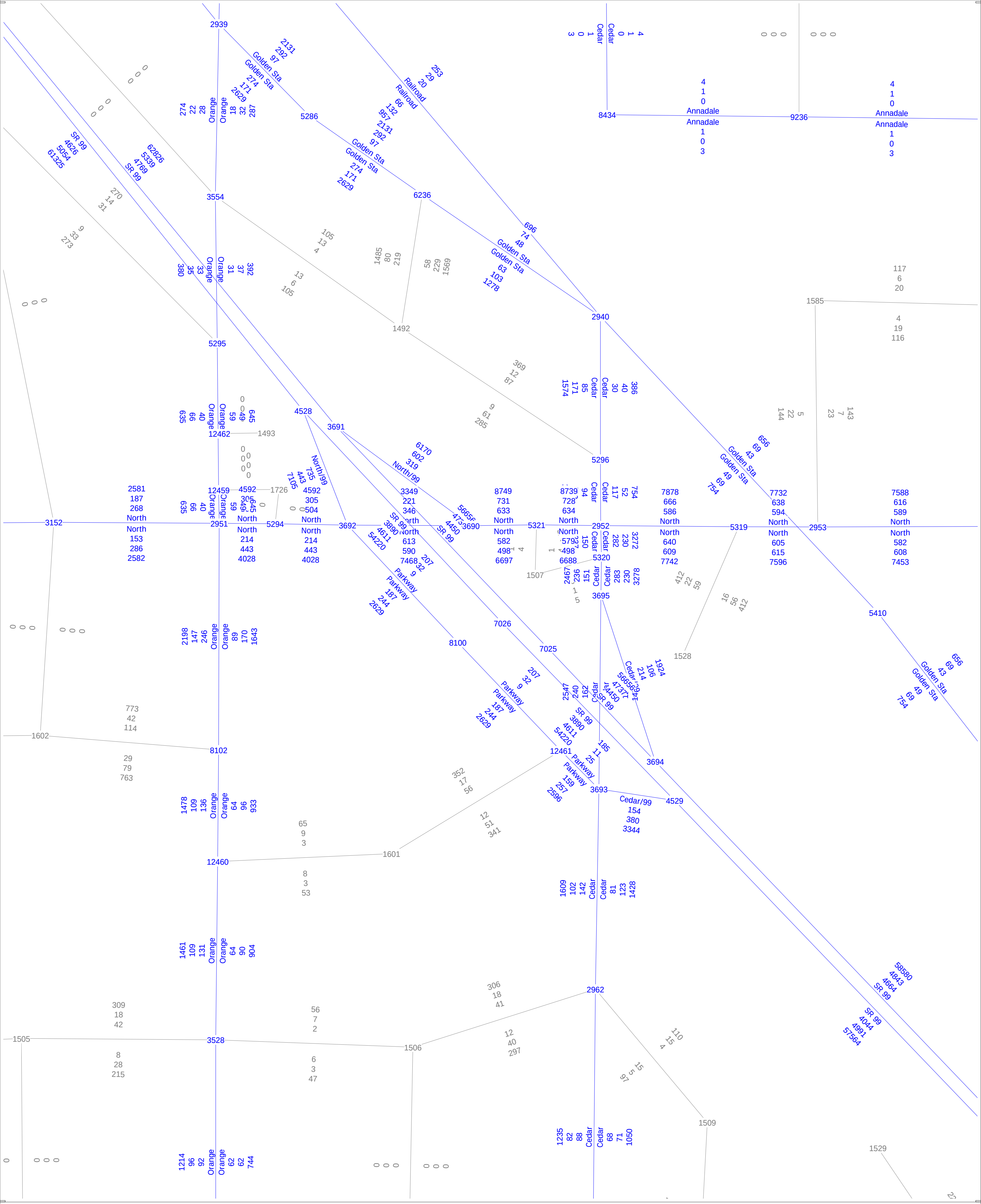
Exhibit A – Aerial

Exhibit B – Model Link and TAZ Modifications




NORTH AND ORANGE
LEGEND
ROADWAY SEGMENT
ELIMINATE TAZ CONNECTOR OR ROADWAY SEGMENT
TAZ CONNECTOR
TAZ CENTROID
North
TAZ A
PARKWAY
NORTH/99
Cumulative Year 2035
Name, Lanes and Speed
cube
(Licensed to JLB Traffic Engineering Inc)



Base Year 2016
AM. PM and Daily Volumes

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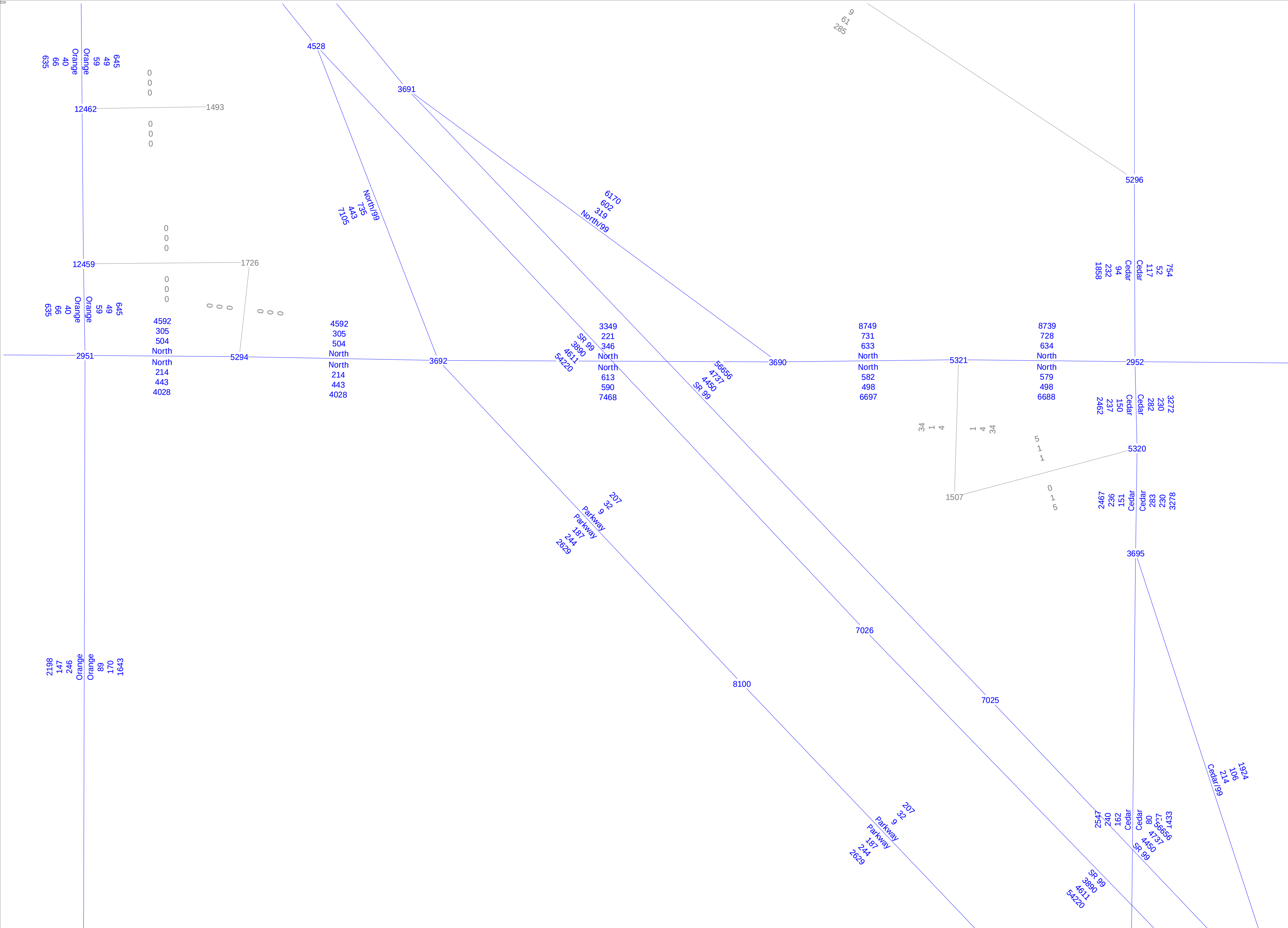

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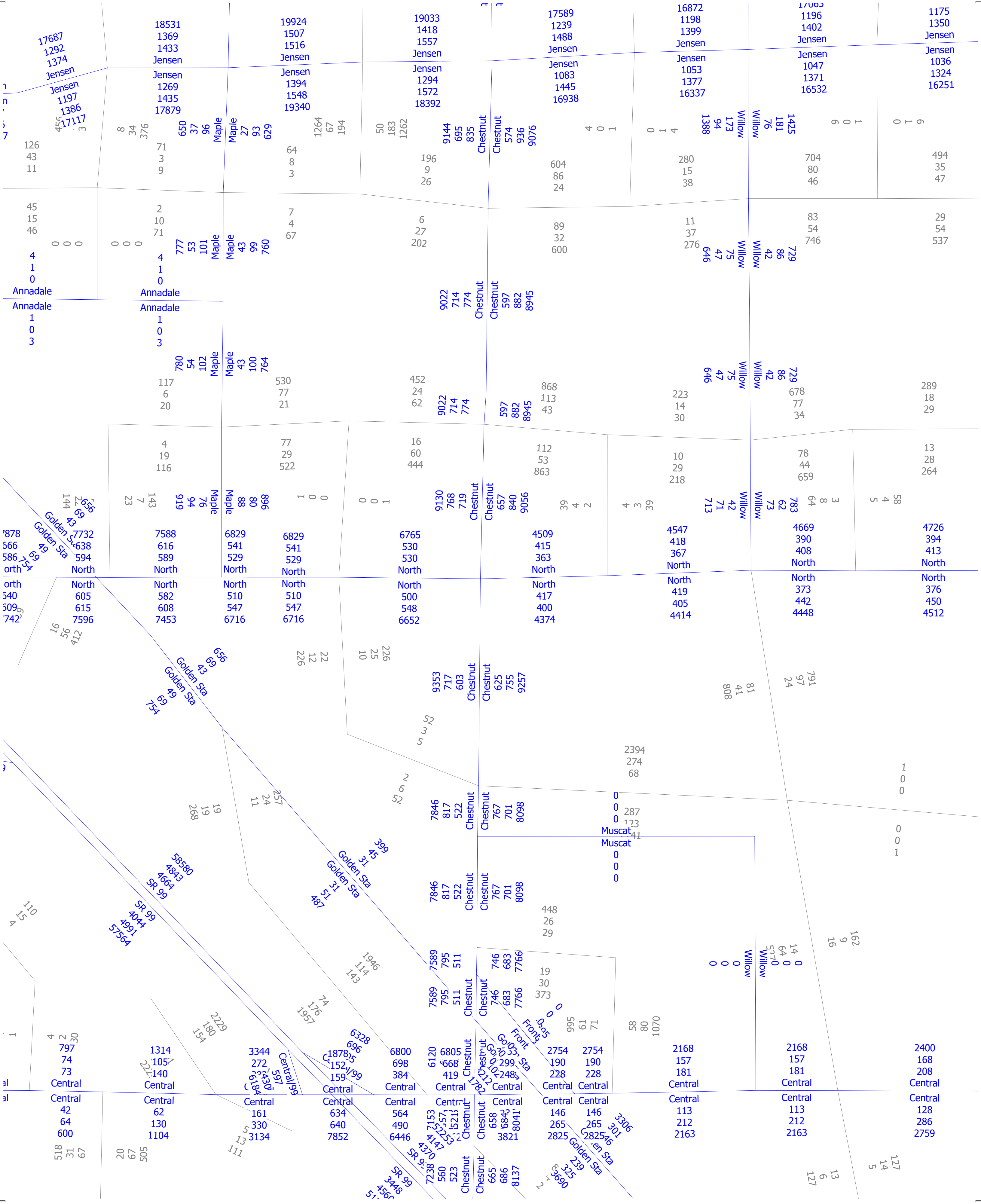

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AM, PM, and Daily Volumes

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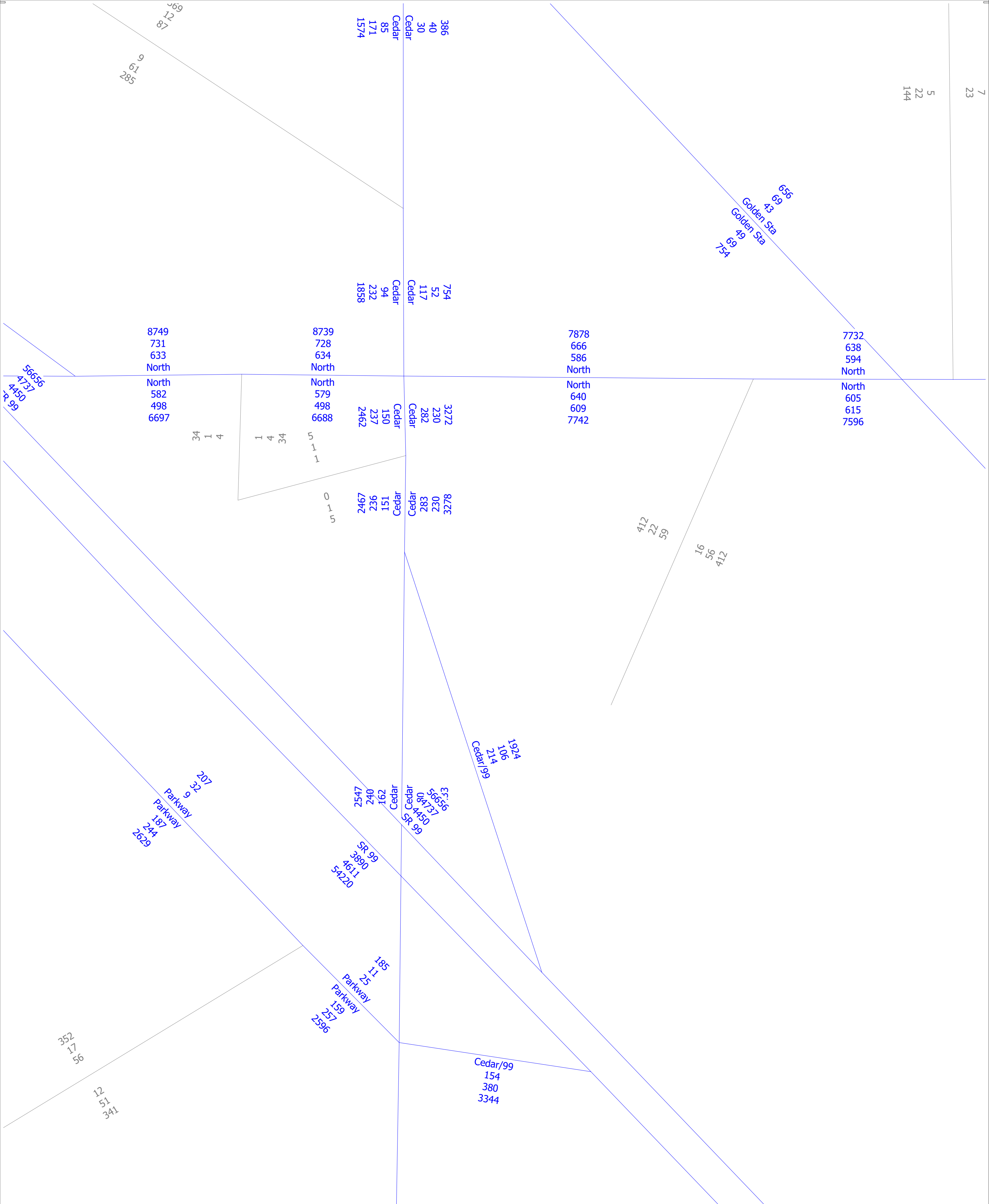

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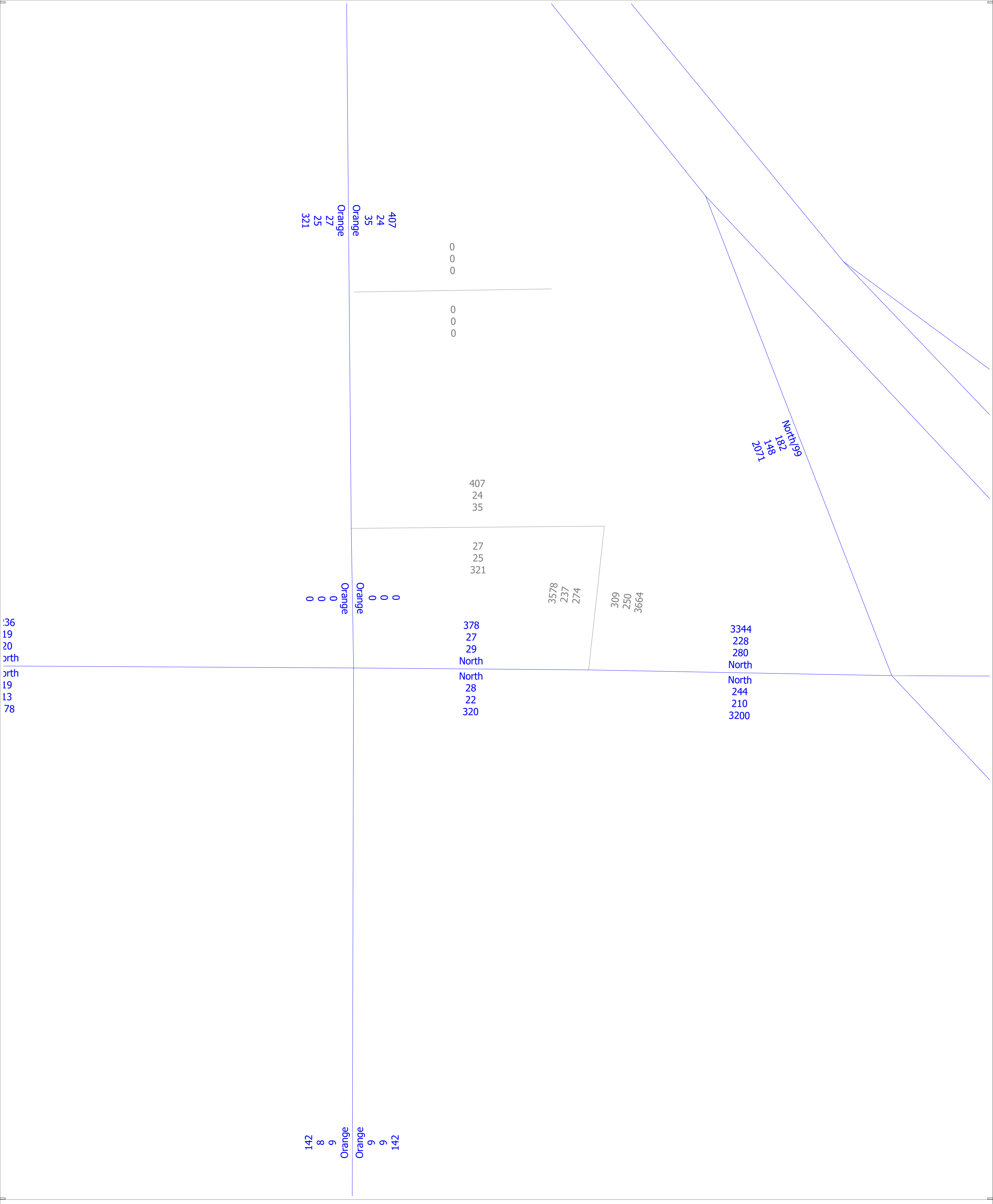

Base Year Select Zone
Project Only Trips
AM, PM, and Daily

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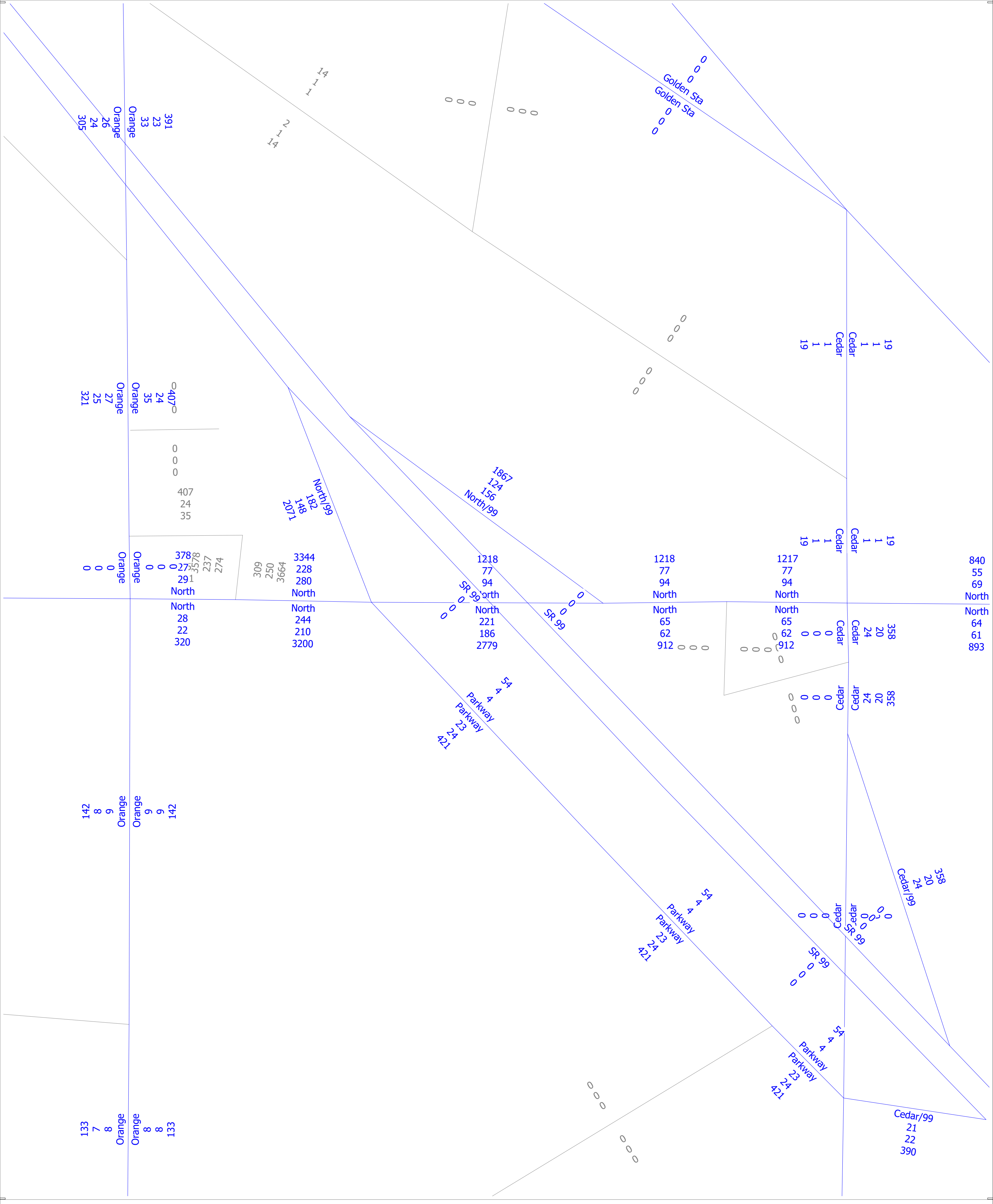

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Project Only Trips
AM, PM, and Daily

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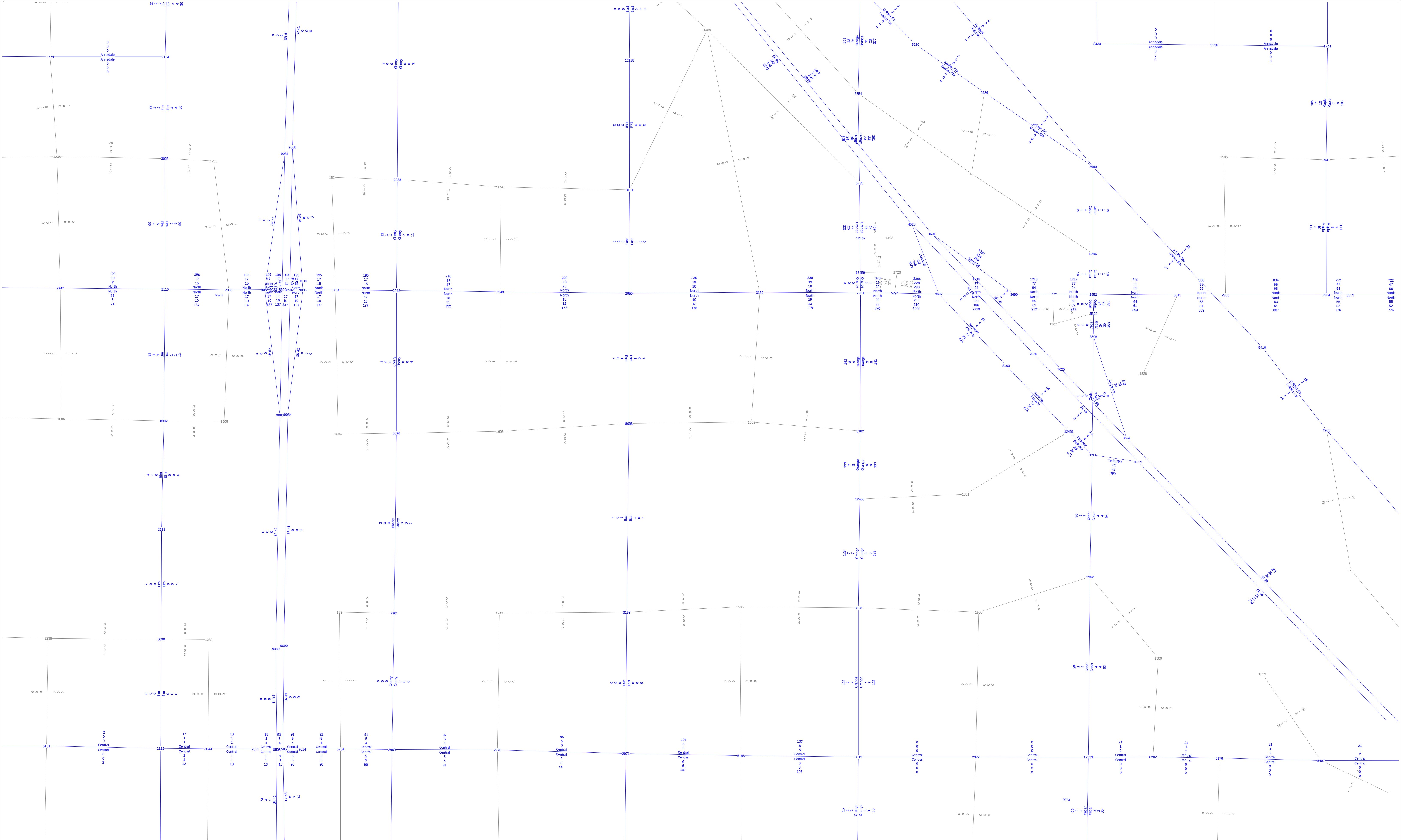

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Project Only Trips
AM, PM and Daily Volumes

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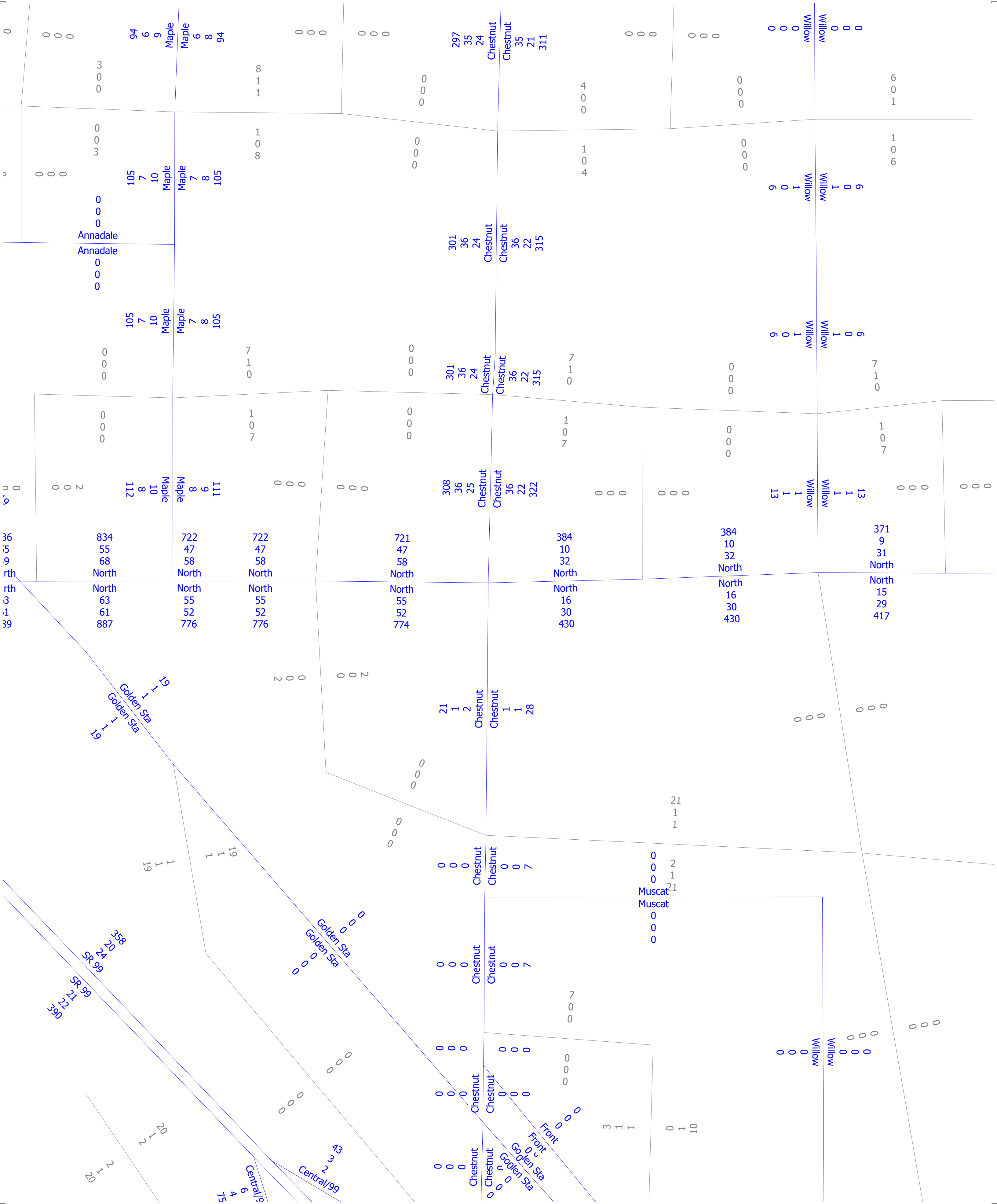

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Project Only Trips
AM, PM, and Daily

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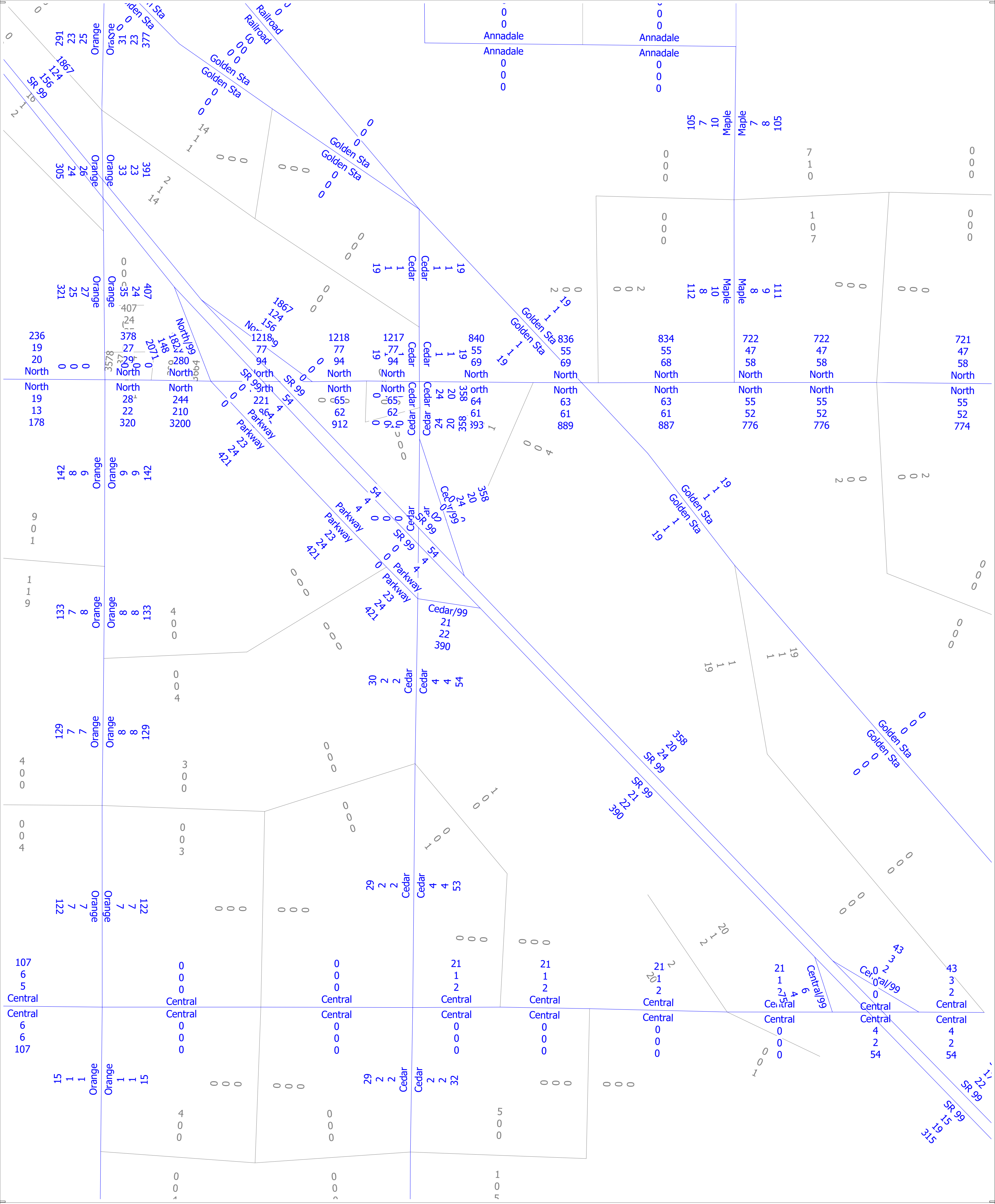

Base Year Select Zone
Project Only Trips
AM, PM, and Daily

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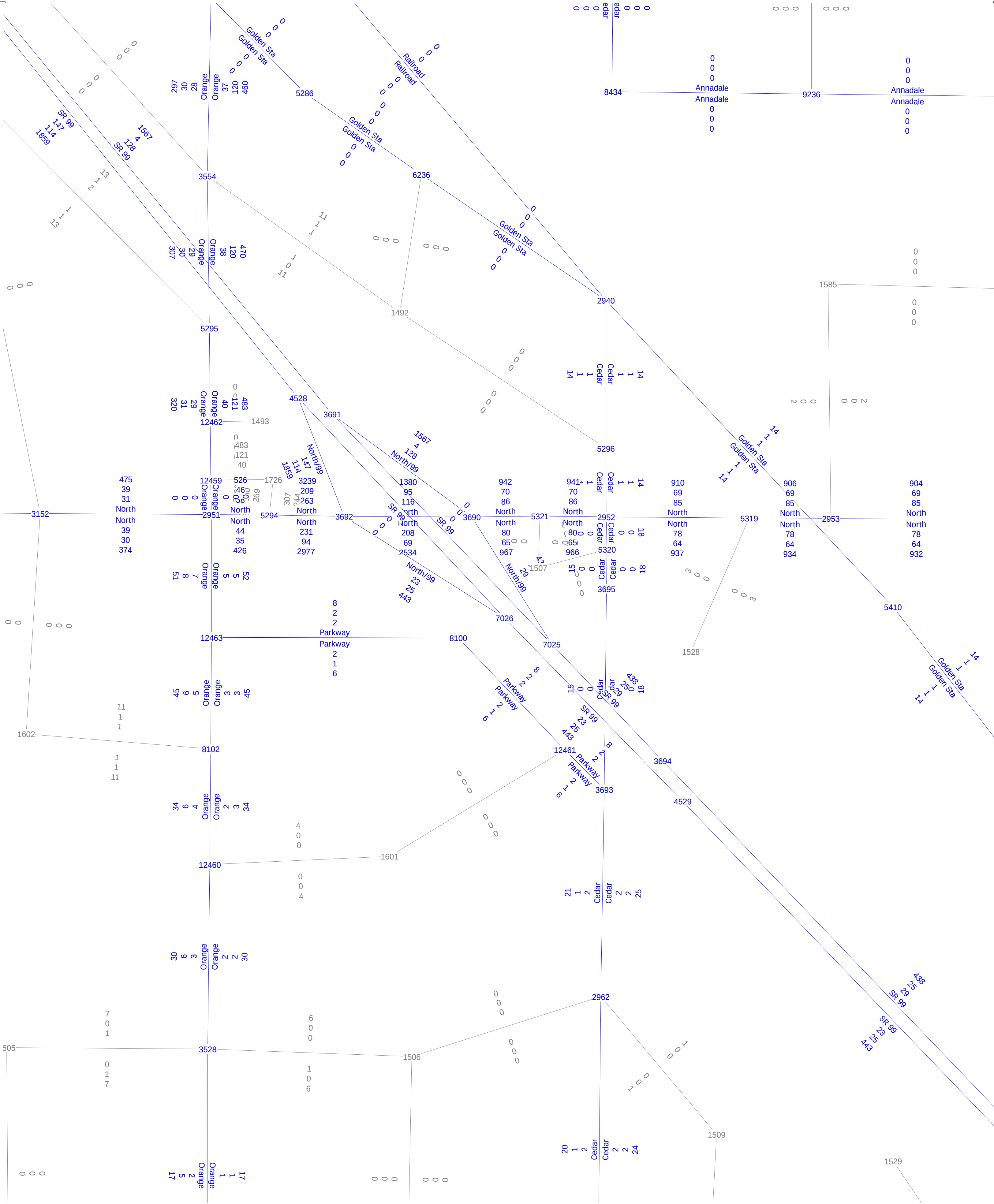

Cumulative 2035 Select Zone
Project Only Trips
AM, PM and Daily

cube

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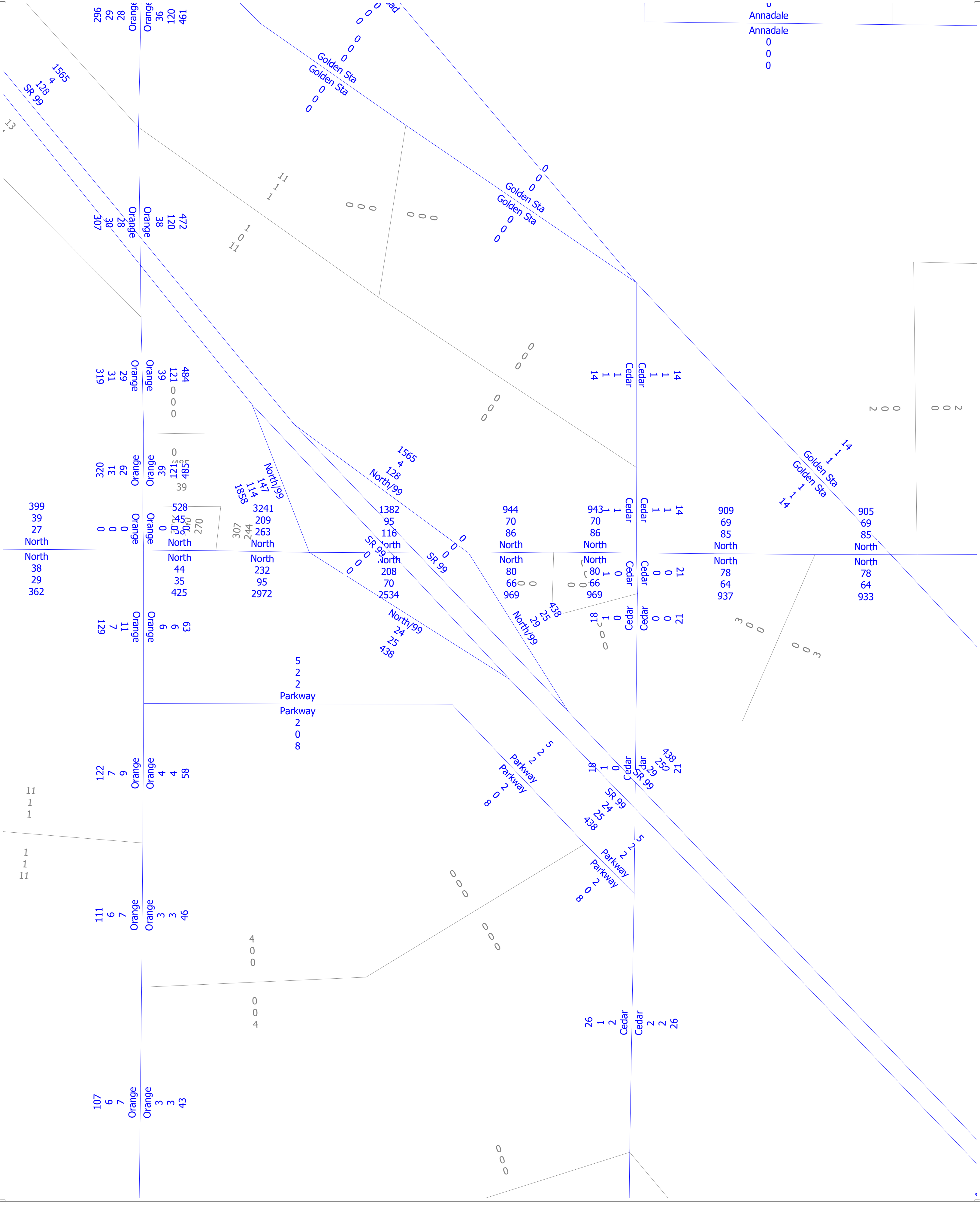
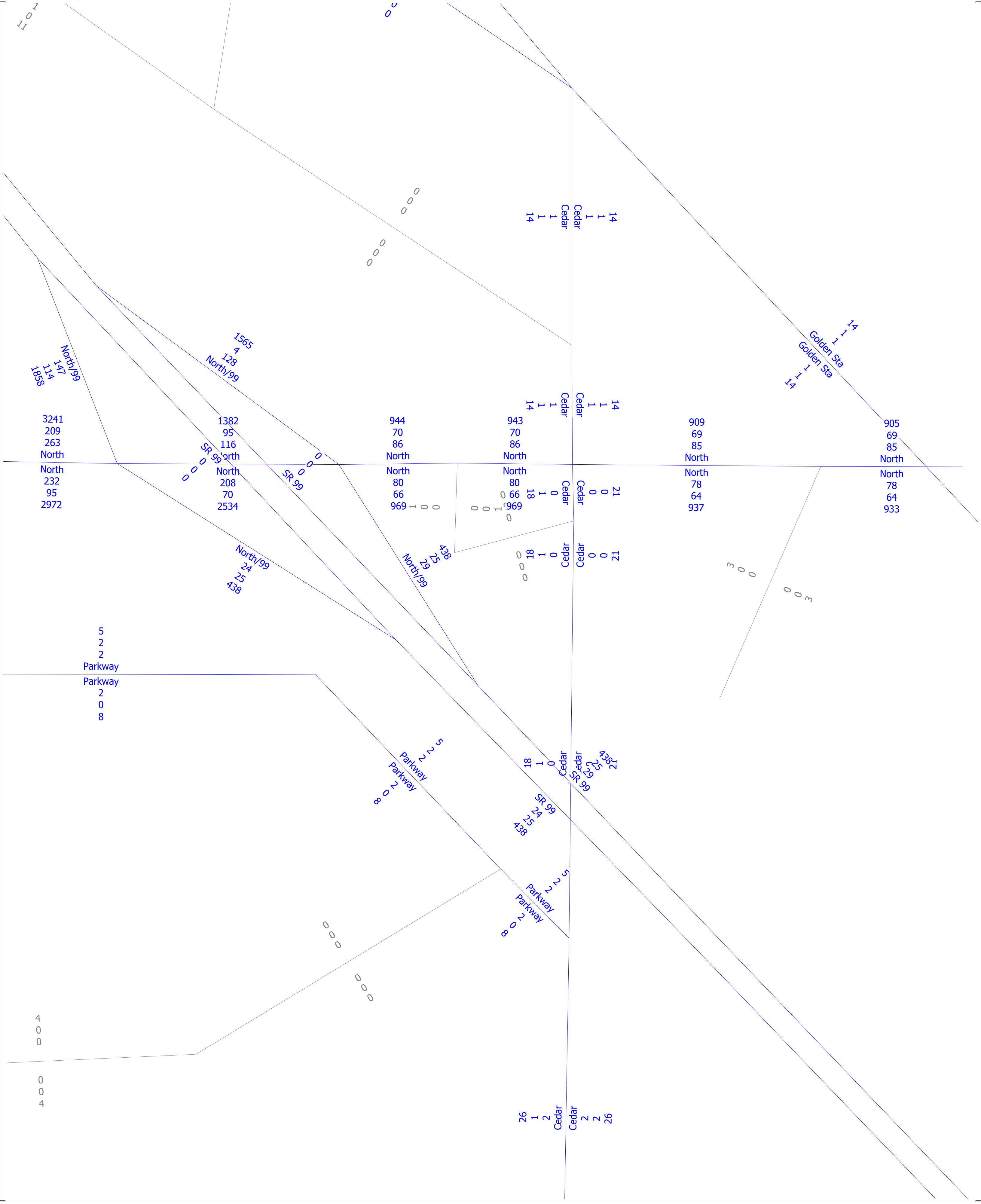


Cumulative 2035 plus Project
Select Zone
AM, PM and Daily Volumes

cube (Licensed to JLB Traffic Engineering Inc)



Cumulative 2035 plus Project
Select Zone
AM, PM and Daily Volumes

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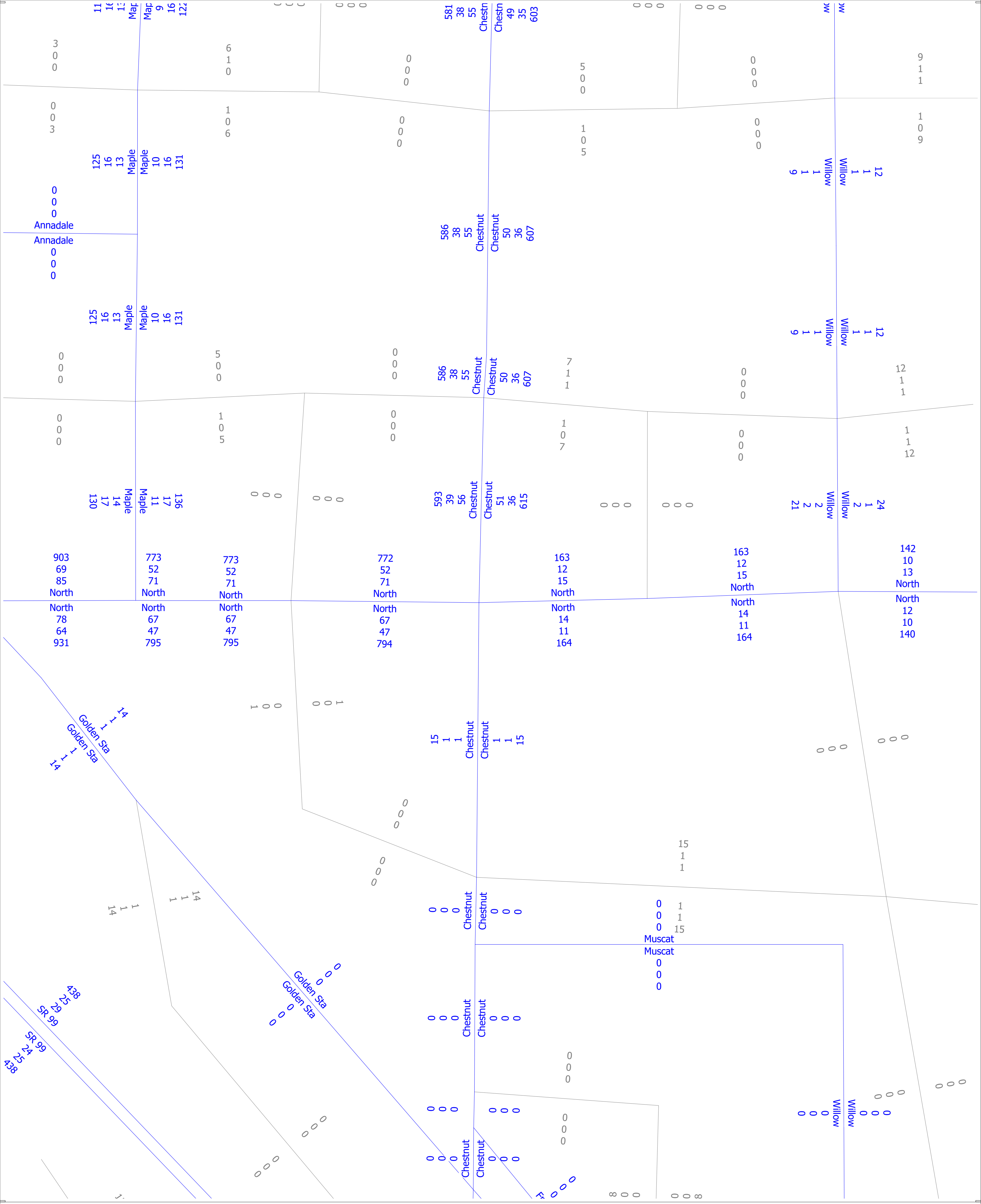

Cumulative 2035 plus Project
Select Zone
AM, PM and Daily Volumes

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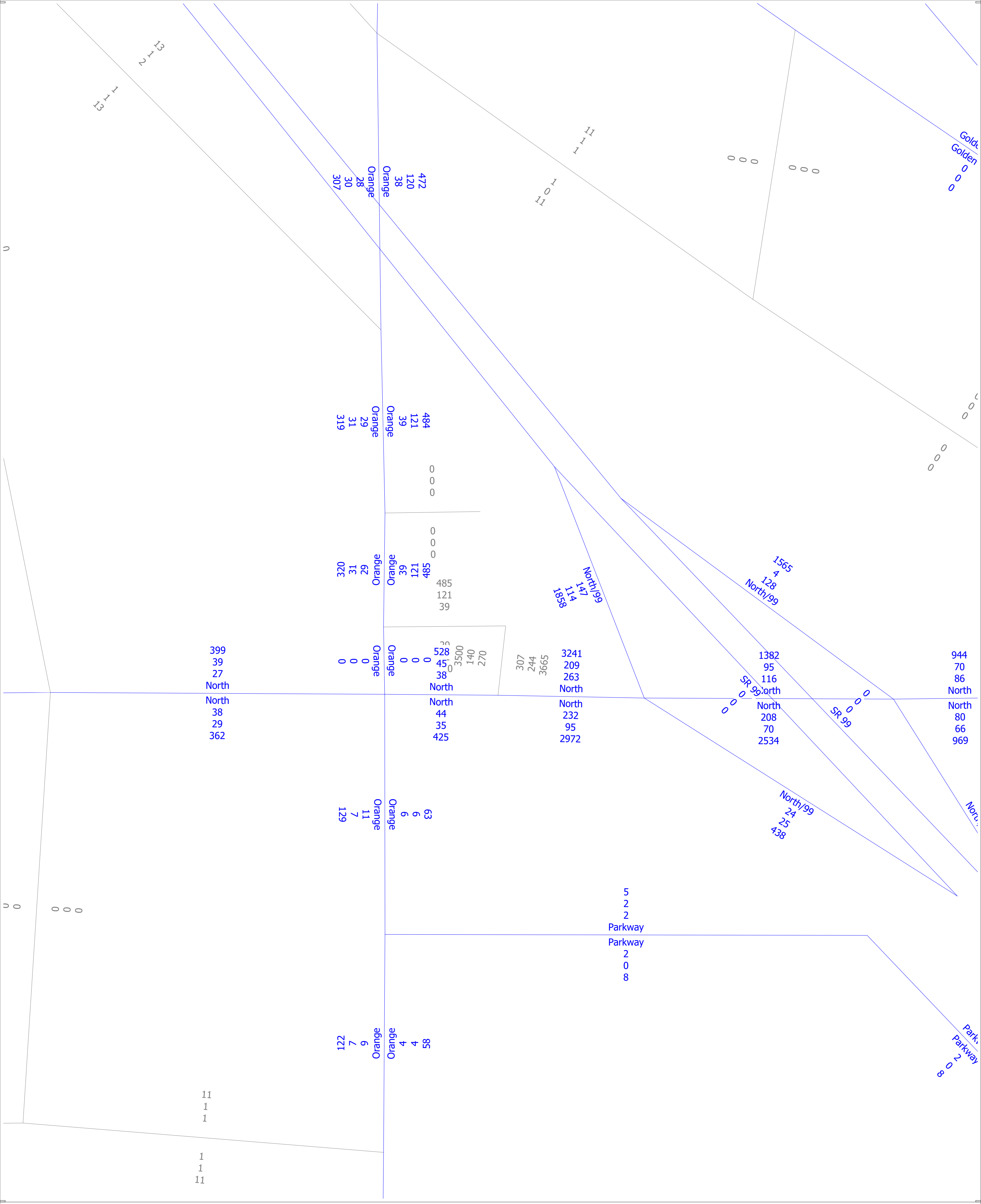

Cumulative 2035 plus Project
AM, PM and Daily Volumes

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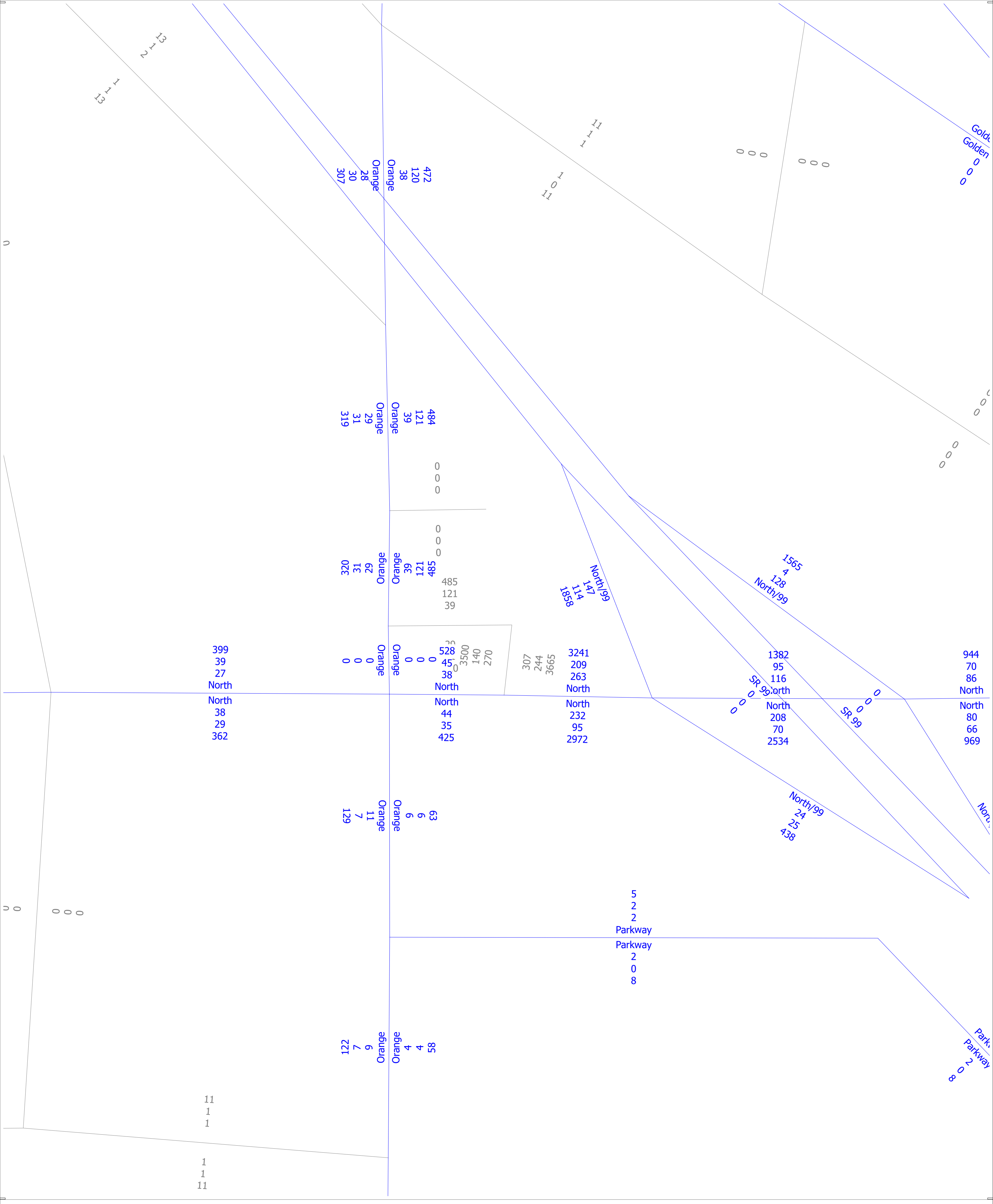

Year 2035
Select Zone
AM, PM and Daily Volumes

cube
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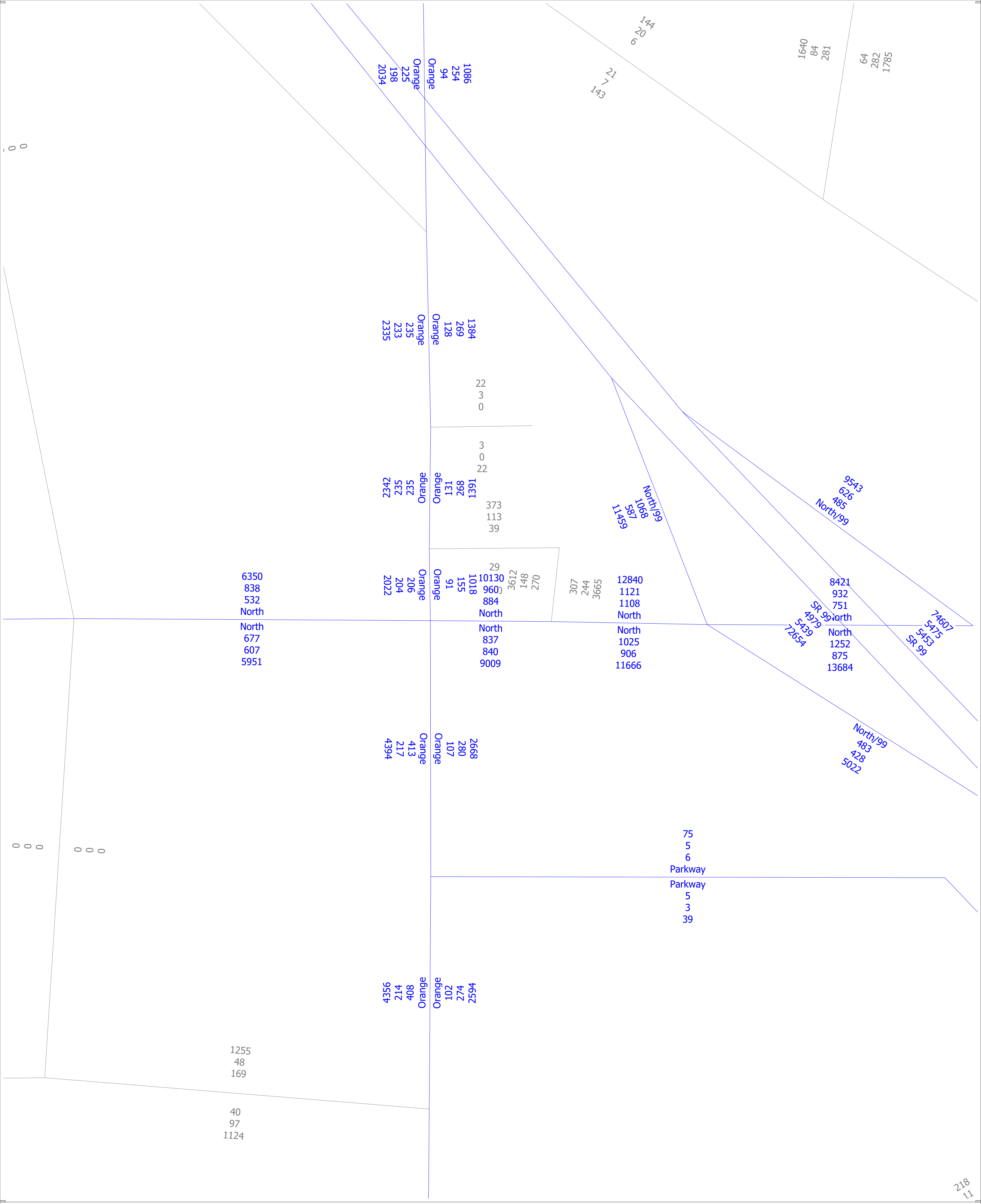

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AM, PM and Daily Volumes

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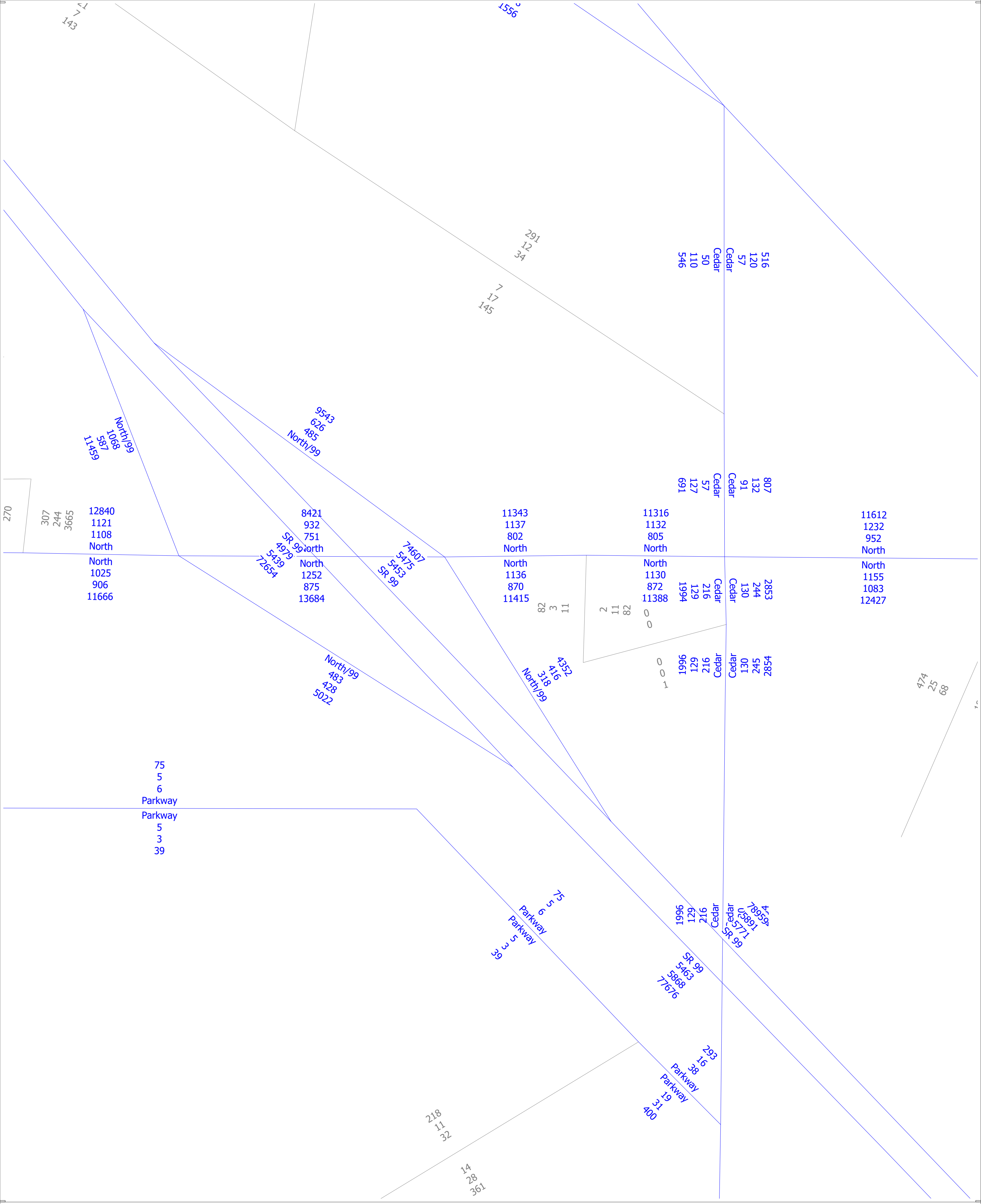

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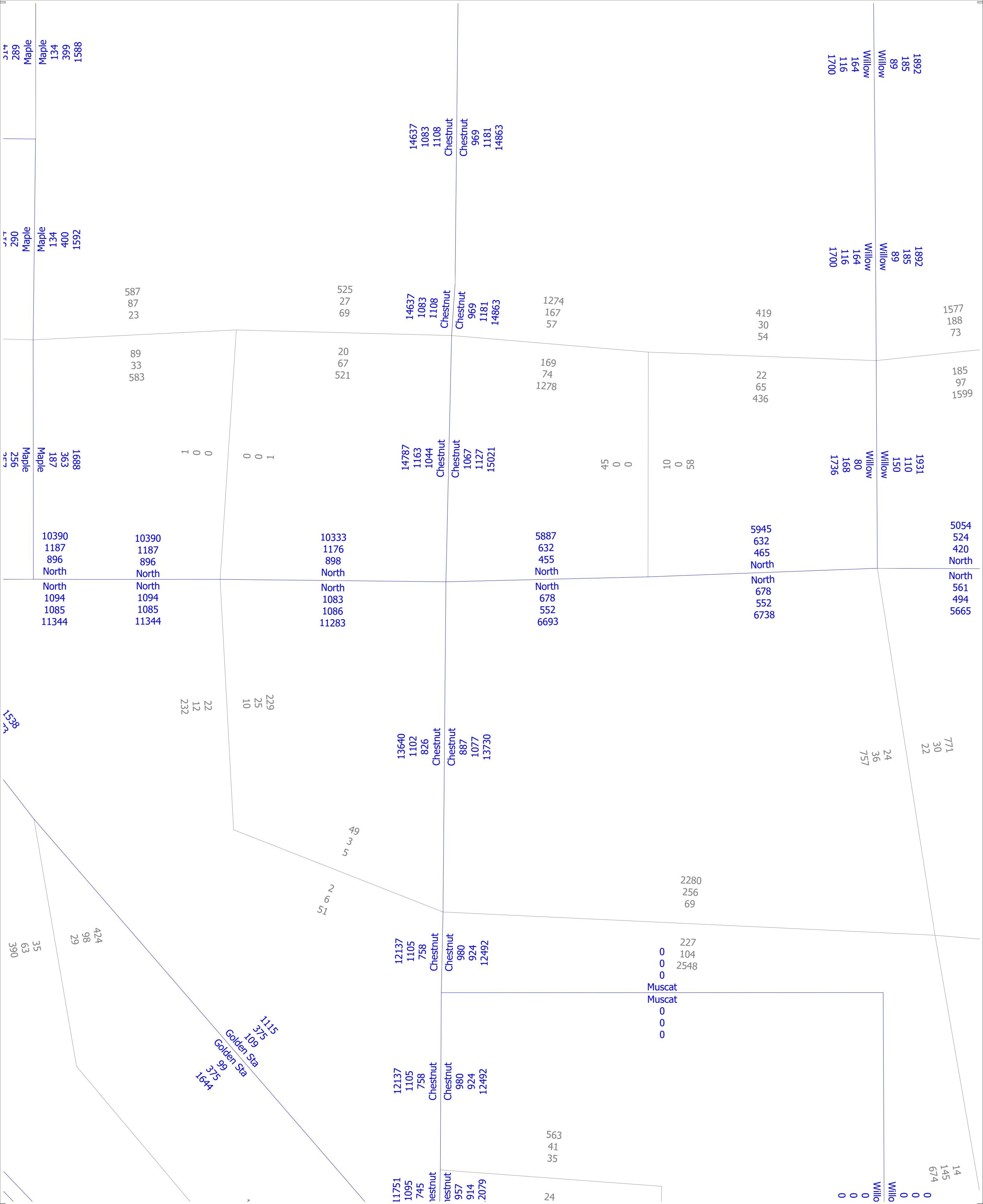

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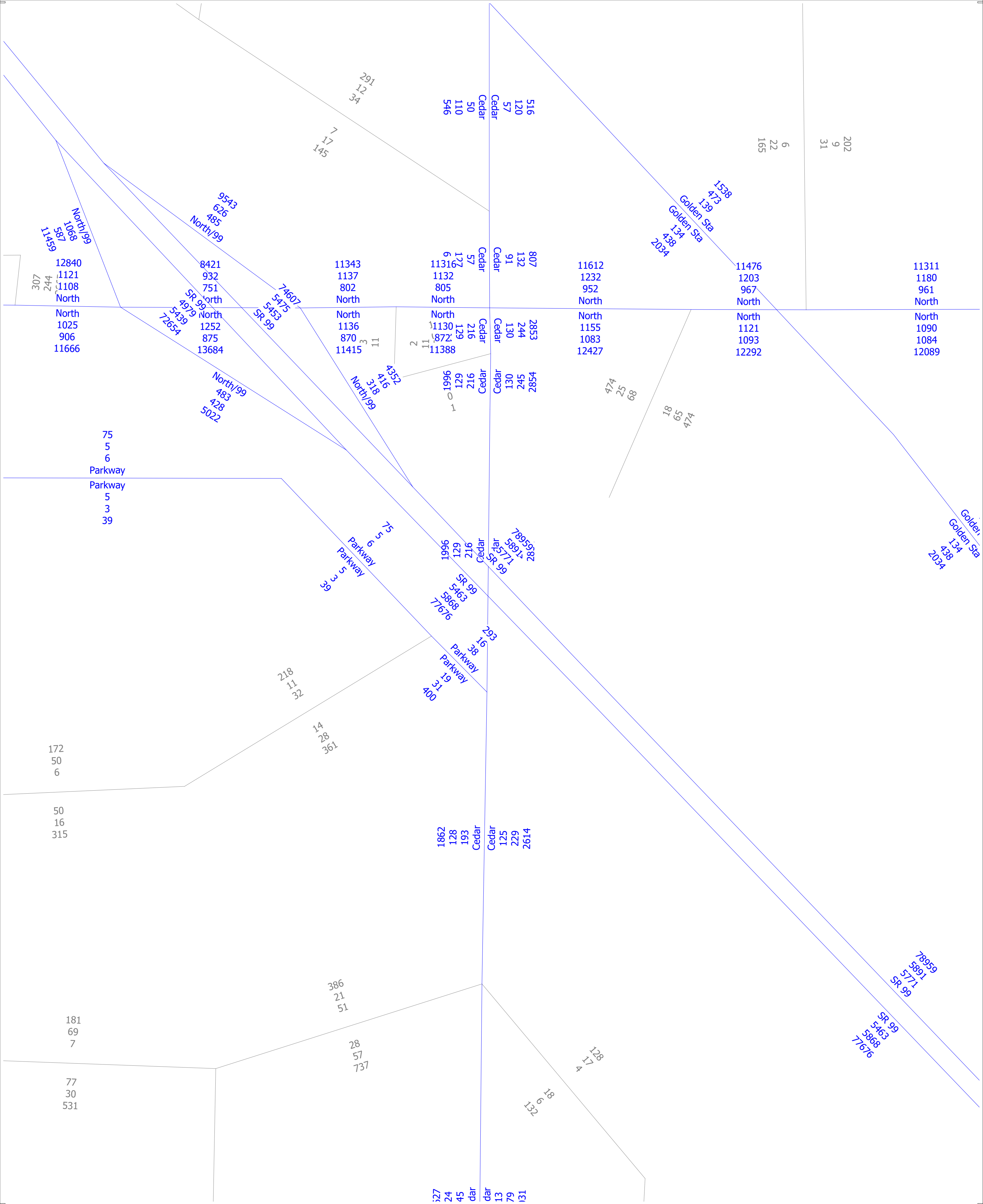

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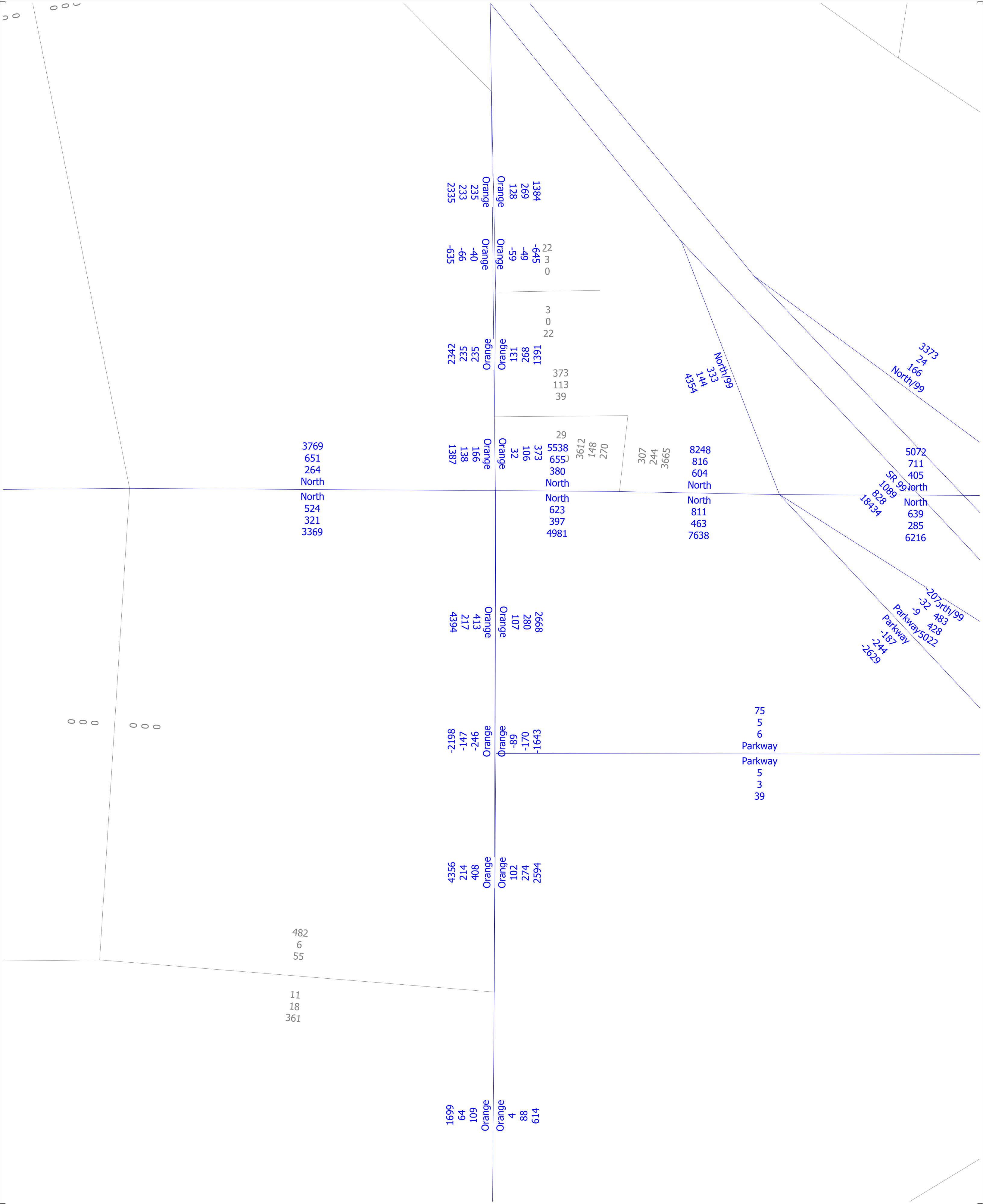

2035 Increment

AM, PM and Daily Volumes

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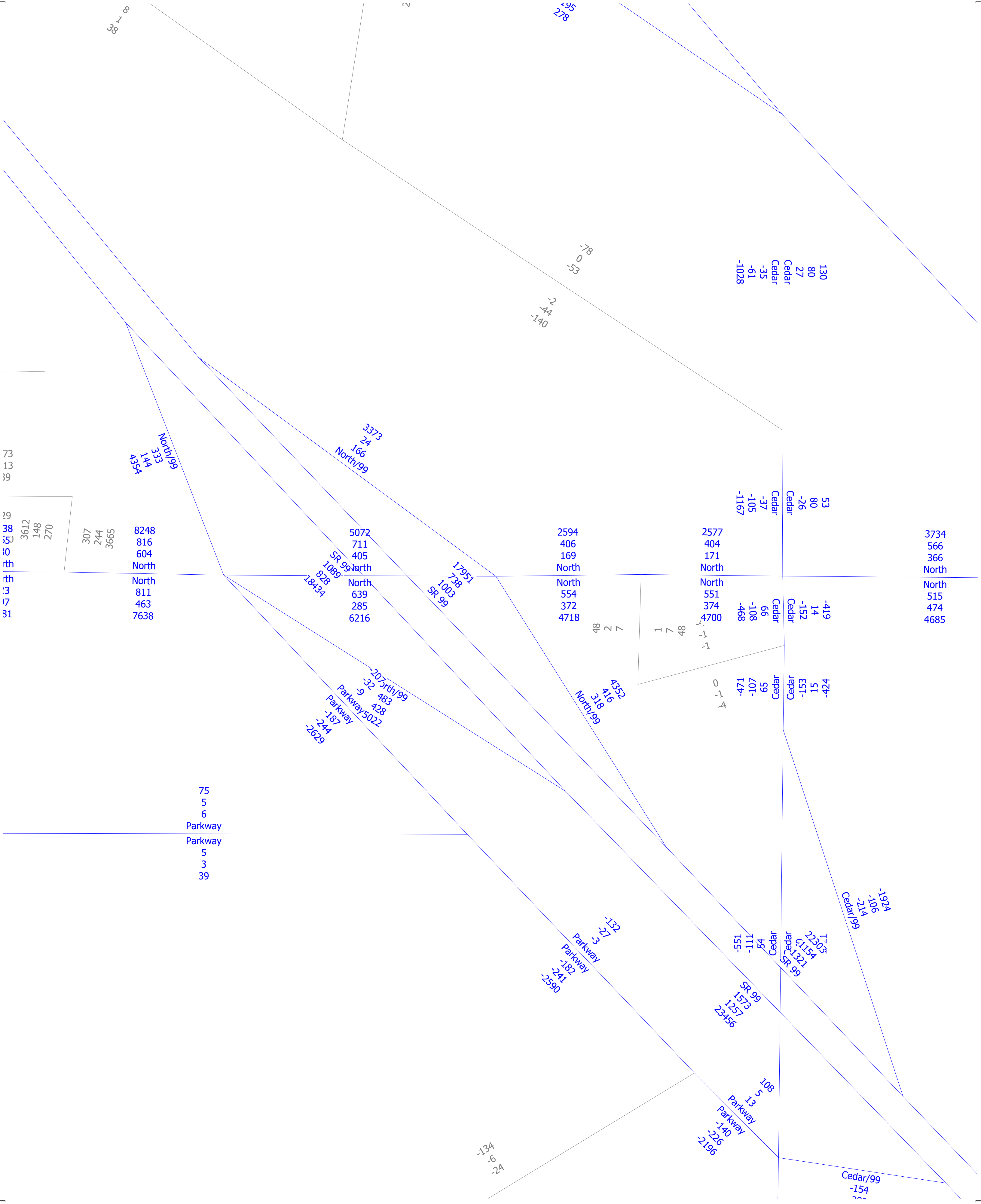

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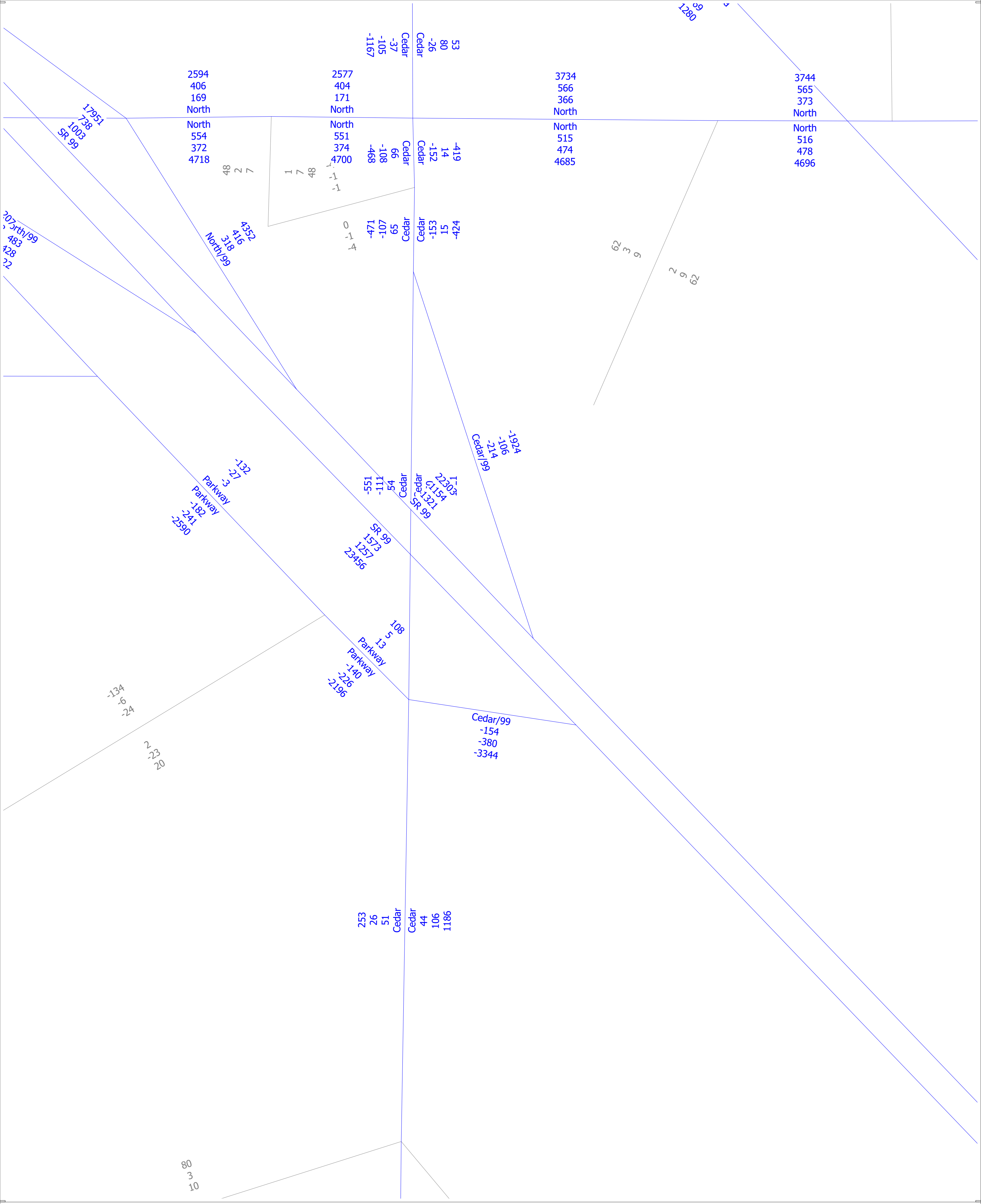

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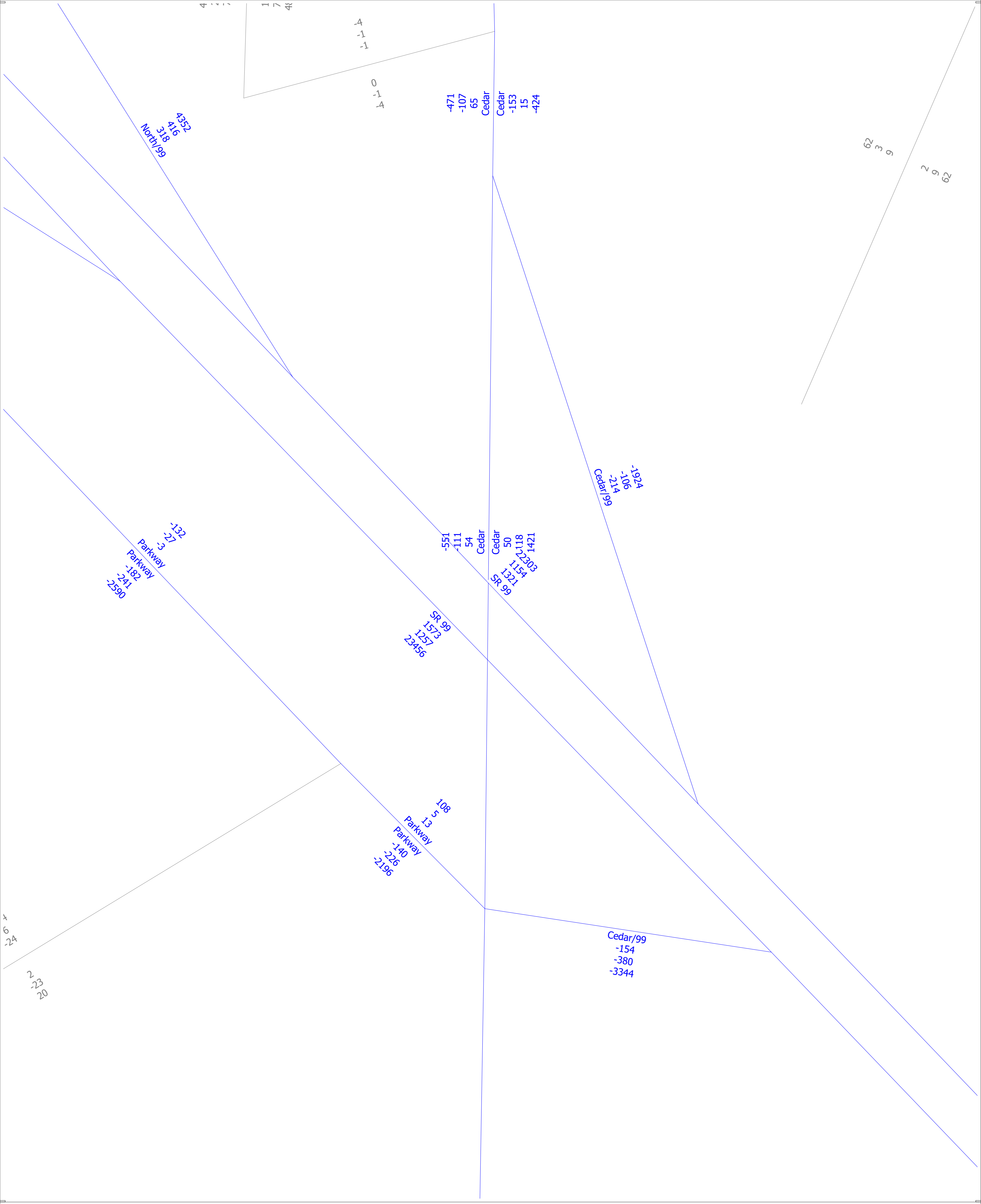

2035 Increment
AM, PM and Daily Volumes

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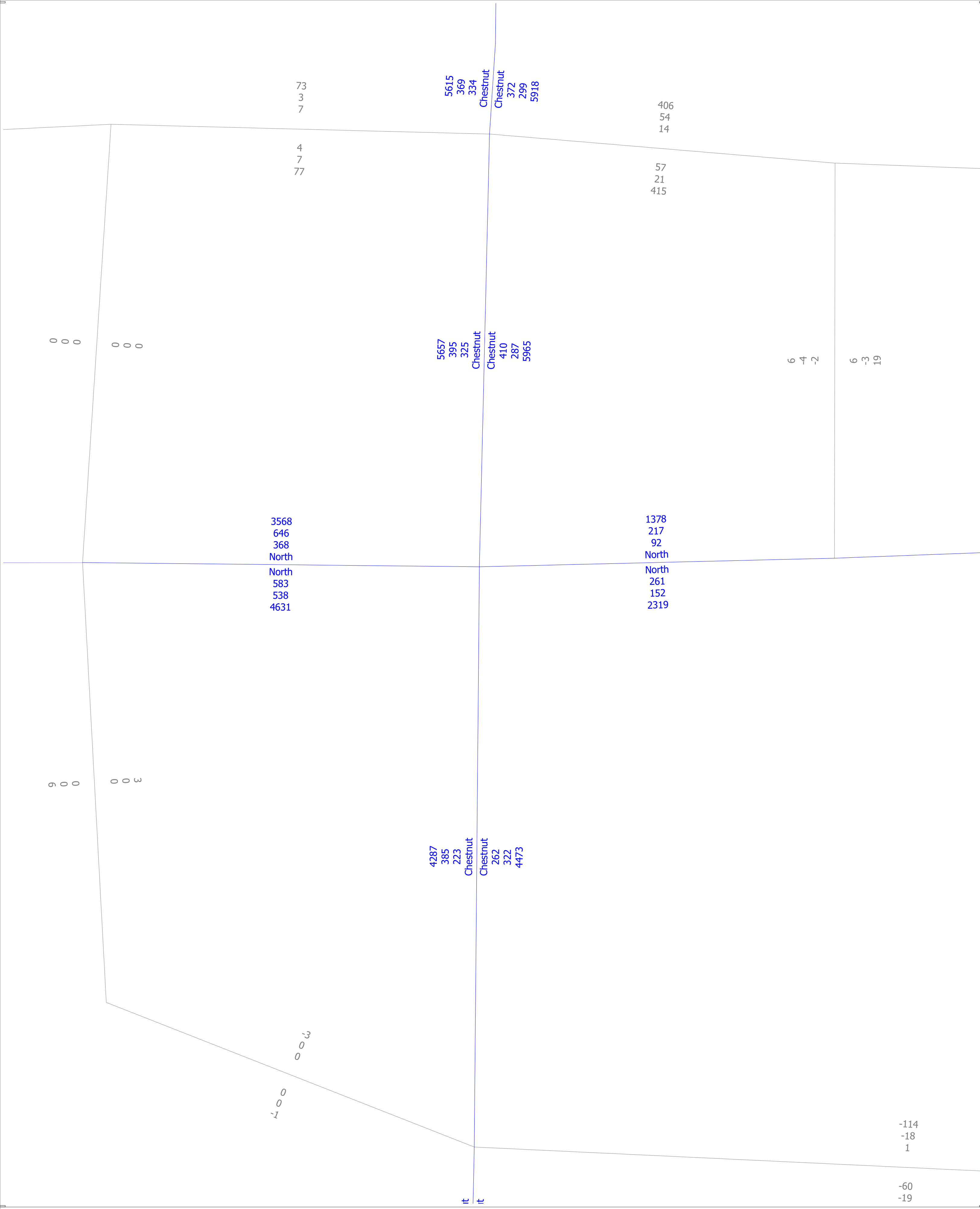


2035 Increment
AM, PM and Daily Volumes

cube

(Licensed to JLB Traffic Engineering Inc)

Appendix D: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 2010 represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish a LOS.

Urban Streets (Automobile Mode)

The term "urban streets" refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials, and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials. They not only move through traffic but also provide access to local businesses for passenger cars, transit buses, and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity, and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses, and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) forces a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Levels of Service (automobile Mode)

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 85 of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 85 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes, inappropriate signal timing, at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-1: Urban Street Levels of Service (Automobile Mode)

Travel Speed as a Percentage of Base Free-Flow Speed (%)	LOS by Critical Volume-to-Capacity Ratio[a]	
	≤1.0	>1.0
>85	A	F
>67 to 85	B	F
>50 to 67	C	F
>40 to 50	D	F
>30 to 40	E	F
≤30	F	F

a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 2010, Exhibit 16-4. Urban Street LOS Criteria (Automobile Mode)

Intersection Levels of Service

One of the more important elements limiting, and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay, and bicycle perception score. LOS is also considered a performance measure. For the automobile mode average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-2.

Table A-2: Signalized Intersection Level of Service Description (Automobile Mode)

Level of Service	Description	Average Control Delay (seconds per vehicle)
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop, and i ndividual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80

Source: Highway Capacity Manual 2010

Unsignalized Intersections

The HCM 2010 procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i. e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections is a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. A LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A LOS for TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-3 provides a description of LOS at unsignalized intersections.

Table A-3: Unsignalized Intersection Level of Service Description (Automobile Mode)

Control Delay (seconds per vehicle)	**LOS by Volume-to-Capacity Ratio**	
	v/c ≤ 1.0	**v/c > 1.0**
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Source: HCM 2010 Exhibit 19-1.

Appendix E: Existing Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑	↱	↰	↑↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (veh/h)	27	146	4	28	311	48	4	12	27	20	13	67
Future Volume (veh/h)	27	146	4	28	311	48	4	12	27	20	13	67
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624
Adj Flow Rate, veh/h	30	162	4	31	346	53	4	13	30	22	14	74
Adj No. of Lanes	1	1	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	17	17	17	17	17	17	17	17	17	17	17	17
Cap, veh/h	43	405	344	44	772	345	6	174	148	33	202	171
Arrive On Green	0.03	0.25	0.25	0.03	0.25	0.25	0.00	0.11	0.11	0.02	0.12	0.12
Sat Flow, veh/h	1547	1624	1380	1547	3085	1380	1547	1624	1380	1547	1624	1380
Grp Volume(v), veh/h	30	162	4	31	346	53	4	13	30	22	14	74
Grp Sat Flow(s),veh/h/ln	1547	1624	1380	1547	1543	1380	1547	1624	1380	1547	1624	1380
Q Serve(g_s), s	0.6	2.8	0.1	0.7	3.1	1.0	0.1	0.2	0.7	0.5	0.3	1.6
Cycle Q Clear(g_c), s	0.6	2.8	0.1	0.7	3.1	1.0	0.1	0.2	0.7	0.5	0.3	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	43	405	344	44	772	345	6	174	148	33	202	171
V/C Ratio(X)	0.70	0.40	0.01	0.70	0.45	0.15	0.62	0.07	0.20	0.68	0.07	0.43
Avail Cap(c_a), veh/h	270	1552	1319	177	2762	1236	177	1762	1498	177	1762	1498
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	10.4	9.4	16.0	10.5	9.7	16.5	13.3	13.5	16.1	12.8	13.4
Incr Delay (d2), s/veh	18.7	0.6	0.0	18.5	0.4	0.2	70.9	0.2	0.7	21.8	0.1	1.7
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	0.5	1.3	0.0	0.5	1.3	0.4	0.2	0.1	0.3	0.4	0.1	0.7
LnGrp Delay(d),s/veh	34.7	11.0	9.4	34.4	10.9	9.9	87.4	13.5	14.2	37.9	13.0	15.2
LnGrp LOS	C	B	A	C	B	A	F	B	B	D	B	B
Approach Vol, veh/h		196			430			47			110	
Approach Delay, s/veh		14.6			12.5			20.2			19.4	
Approach LOS		B			B			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	9.6	5.1	13.6	4.3	10.1	5.1	13.6
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	* 4.2	6.0	* 4.2	5.3
Max Green Setting (Gmax), s	* 3.8	36.0	* 3.8	31.7	* 3.8	36.0	* 5.8	29.7
Max Q Clear Time (g_c+I1), s	2.5	2.7	2.7	4.8	2.1	3.6	2.6	5.1
Green Ext Time (p_c), s	0.0	0.4	0.0	3.2	0.0	0.4	0.0	3.2

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	9.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	120	79	4	247	0	9	0	17	153	109	123
Future Vol, veh/h	0	120	79	4	247	0	9	0	17	153	109	123
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	60	-	-	-	0	-	45	-	-	55
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	27	27	27	27	0	27	0	27	27	27	27
Mvmt Flow	0	133	88	4	274	0	10	0	19	170	121	137

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	133	0	0	477	-	133	416	416	274
Stage 1	-	-	-	-	-	-	133	-	-	283	283	-
Stage 2	-	-	-	-	-	-	344	-	-	133	133	-
Critical Hdwy	-	-	-	4.37	-	-	7.37	-	6.47	7.37	6.77	6.47
Critical Hdwy Stg 1	-	-	-	-	-	-	6.37	-	-	6.37	5.77	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.37	-	-	6.37	5.77	-
Follow-up Hdwy	-	-	-	2.443	-	-	3.743	-	3.543	3.743	4.243	3.543
Pot Cap-1 Maneuver	0	-	0	1311	-	0	459	0	854	506	491	708
Stage 1	0	-	0	-	-	0	814	0	-	673	634	-
Stage 2	0	-	0	-	-	0	622	0	-	814	741	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	1311	-	-	299	-	854	493	489	708
Mov Cap-2 Maneuver	-	-	-	-	-	-	299	-	-	493	489	-
Stage 1	-	-	-	-	-	-	814	-	-	673	631	-
Stage 2	-	-	-	-	-	-	404	-	-	796	741	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	12.1	18.9
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	299	854	-	1311	-	491	708
HCM Lane V/C Ratio	0.033	0.022	-	0.003	-	0.593	0.193
HCM Control Delay (s)	17.5	9.3	-	7.8	0	22.5	11.3
HCM Lane LOS	C	A	-	A	A	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0	-	3.8	0.7

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	45	230	269	85	0	0
Future Volume (Veh/h)	45	230	269	85	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	48	245	286	90	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			947			
pX, platoon unblocked						
vC, conflicting volume	286				627	286
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286				627	286
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	96				100	100
cM capacity (veh/h)	1122				431	758

Direction, Lane #	EB 1	WB 1	WB 2
Volume Total	293	286	90
Volume Left	48	0	0
Volume Right	0	0	90
cSH	1122	1700	1700
Volume to Capacity	0.04	0.17	0.05
Queue Length 95th (ft)	3	0	0
Control Delay (s)	1.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	1.7	0.0	
Approach LOS			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	190	24	28	186	27	251	29	40	8	25	15
Future Volume (veh/h)	33	190	24	28	186	27	251	29	40	8	25	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1439	1439	1439	1439	1439	1900	1439	1439	1439	1439	1439	1439
Adj Flow Rate, veh/h	41	235	30	35	230	33	310	36	49	10	31	19
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	32	32	32	32	32	32	32	32	32	32	32	32
Cap, veh/h	59	380	323	52	319	46	357	477	405	18	120	102
Arrive On Green	0.04	0.26	0.26	0.04	0.26	0.26	0.26	0.33	0.33	0.01	0.08	0.08
Sat Flow, veh/h	1371	1439	1223	1371	1232	177	1371	1439	1223	1371	1439	1223
Grp Volume(v), veh/h	41	235	30	35	0	263	310	36	49	10	31	19
Grp Sat Flow(s),veh/h/ln	1371	1439	1223	1371	0	1408	1371	1439	1223	1371	1439	1223
Q Serve(g_s), s	1.6	7.5	1.0	1.3	0.0	8.9	11.4	0.9	1.5	0.4	1.1	0.8
Cycle Q Clear(g_c), s	1.6	7.5	1.0	1.3	0.0	8.9	11.4	0.9	1.5	0.4	1.1	0.8
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	380	323	52	0	365	357	477	405	18	120	102
V/C Ratio(X)	0.70	0.62	0.09	0.67	0.00	0.72	0.87	0.08	0.12	0.56	0.26	0.19
Avail Cap(c_a), veh/h	156	838	712	130	0	793	490	1254	1066	130	876	745
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	17.0	14.6	25.0	0.0	17.7	18.6	12.1	12.3	25.8	22.6	22.4
Incr Delay (d2), s/veh	13.9	1.6	0.1	13.9	0.0	2.7	11.8	0.1	0.1	25.2	1.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.2	0.3	0.7	0.0	3.7	5.4	0.4	0.5	0.3	0.5	0.3
LnGrp Delay(d),s/veh	38.7	18.7	14.7	38.8	0.0	20.4	30.4	12.1	12.4	51.0	23.7	23.3
LnGrp LOS	D	B	B	D		C	C	B	B	D	C	C
Approach Vol, veh/h		306			298			395			60	
Approach Delay, s/veh		21.0			22.6			26.5			28.1	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.9	22.3	6.2	19.2	17.9	9.3	6.5	18.9				
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3				
Max Green Setting (Gmax), s	* 5	45.8	* 5	30.6	* 19	32.0	* 6	29.6				
Max Q Clear Time (g_c+I1), s	2.4	3.5	3.3	9.5	13.4	3.1	3.6	10.9				
Green Ext Time (p_c), s	0.0	0.6	0.0	2.8	0.5	0.5	0.0	2.7				
Intersection Summary												
HCM 2010 Ctrl Delay			23.9									
HCM 2010 LOS			C									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	91	59	63	123	40	86	225	40	63	298	26
Future Volume (veh/h)	17	91	59	63	123	40	86	225	40	63	298	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	20	108	70	75	146	48	102	268	48	75	355	31
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	123	260	153	200	265	75	127	727	128	91	731	63
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.08	0.26	0.26	0.05	0.23	0.23
Sat Flow, veh/h	69	912	536	280	928	263	1675	2840	502	1675	3112	270
Grp Volume(v), veh/h	198	0	0	269	0	0	102	156	160	75	190	196
Grp Sat Flow(s),veh/h/ln	1517	0	0	1471	0	0	1675	1671	1671	1675	1671	1712
Q Serve(g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	2.3	2.9	3.0	1.7	3.8	3.8
Cycle Q Clear(g_c), s	4.0	0.0	0.0	5.8	0.0	0.0	2.3	2.9	3.0	1.7	3.8	3.8
Prop In Lane	0.10		0.35	0.28		0.18	1.00		0.30	1.00		0.16
Lane Grp Cap(c), veh/h	536	0	0	540	0	0	127	428	428	91	392	402
V/C Ratio(X)	0.37	0.00	0.00	0.50	0.00	0.00	0.80	0.37	0.37	0.82	0.48	0.49
Avail Cap(c_a), veh/h	1384	0	0	1342	0	0	428	1090	1090	297	946	969
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.2	0.0	0.0	11.8	0.0	0.0	17.4	11.7	11.7	17.9	12.7	12.7
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.7	0.0	0.0	11.1	0.5	0.5	16.2	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	2.6	0.0	0.0	1.4	1.4	1.4	1.2	1.8	1.9
LnGrp Delay(d),s/veh	11.7	0.0	0.0	12.5	0.0	0.0	28.5	12.2	12.3	34.2	13.6	13.6
LnGrp LOS	B			B			C	B	B	C	B	B
Approach Vol, veh/h		198			269			418			461	
Approach Delay, s/veh		11.7			12.5			16.2			16.9	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	15.8		16.2	7.1	15.0		16.2
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 6.8	* 25		33.0	* 9.8	21.7		33.0
Max Q Clear Time (g_c+I1), s	3.7	5.0		6.0	4.3	5.8		7.8
Green Ext Time (p_c), s	0.0	3.4		2.8	0.1	3.2		2.7

Intersection Summary	
HCM 2010 Ctrl Delay	15.1
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	5.9

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	92	0	0	85	28	195
Future Vol, veh/h	92	0	0	85	28	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	85	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	33	0	0	33	33	33
Mvmt Flow	103	0	0	96	31	219

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	199	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	-	-	6.73	6.53
Critical Hdwy Stg 1	-	-	-	-	5.73	-
Critical Hdwy Stg 2	-	-	-	-	5.73	-
Follow-up Hdwy	-	-	-	-	3.797	3.597
Pot Cap-1 Maneuver	-	0	0	-	725	874
Stage 1	-	0	0	-	849	-
Stage 2	-	0	0	-	856	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	725	874
Mov Cap-2 Maneuver	-	-	-	-	725	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	856	-

Approach	NB	SB	NW
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NWLn1	NWLn2	SBT
Capacity (veh/h)	-	725	874	-
HCM Lane V/C Ratio	-	0.043	0.251	-
HCM Control Delay (s)	-	10.2	10.5	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	1	-

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	71	88	0	0	0	16	97	26	40	60	13
Future Vol, veh/h	5	71	88	0	0	0	16	97	26	40	60	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	Free	-	-	Free
Storage Length	-	-	100	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	5	77	96	0	0	0	17	105	28	43	65	14

Major/Minor	Minor2			Major1			Major2		
Conflicting Flow All	292	292	65	65	0	-	105	0	0
Stage 1	152	152	-	-	-	-	-	-	-
Stage 2	140	140	-	-	-	-	-	-	-
Critical Hdwy	6.9	7	6.7	4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	5.9	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	6	-	-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75	2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	609	546	880	1280	-	0	1234	-	0
Stage 1	771	689	-	-	-	0	-	-	0
Stage 2	782	698	-	-	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	579	0	880	1280	-	-	1234	-	-
Mov Cap-2 Maneuver	579	0	-	-	-	-	-	-	-
Stage 1	743	0	-	-	-	-	-	-	-
Stage 2	771	0	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	1.1	3.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	1280	-	579	880	1234	-
HCM Lane V/C Ratio	0.014	-	0.143	0.109	0.035	-
HCM Control Delay (s)	7.9	0	12.3	9.6	8	0
HCM Lane LOS	A	A	B	A	A	A
HCM 95th %tile Q(veh)	0	-	0.5	0.4	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	336	9	36	227	18	13	37	59	66	23	47
Future Volume (veh/h)	51	336	9	36	227	18	13	37	59	66	23	47
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1638	1638	1638	1638	1638	1638	1638	1638	1638	1638	1638	1638
Adj Flow Rate, veh/h	57	378	10	40	255	20	15	42	66	74	26	53
Adj No. of Lanes	1	1	1	1	2	1	1	1	1	1	1	1
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, %	16	16	16	16	16	16	16	16	16	16	16	16
Cap, veh/h	69	548	466	53	1009	452	23	177	150	86	243	206
Arrive On Green	0.04	0.33	0.33	0.03	0.32	0.32	0.01	0.11	0.11	0.05	0.15	0.15
Sat Flow, veh/h	1560	1638	1392	1560	3112	1392	1560	1638	1392	1560	1638	1392
Grp Volume(v), veh/h	57	378	10	40	255	20	15	42	66	74	26	53
Grp Sat Flow(s),veh/h/ln	1560	1638	1392	1560	1556	1392	1560	1638	1392	1560	1638	1392
Q Serve(g_s), s	1.5	8.4	0.2	1.1	2.5	0.4	0.4	1.0	1.9	2.0	0.6	1.4
Cycle Q Clear(g_c), s	1.5	8.4	0.2	1.1	2.5	0.4	0.4	1.0	1.9	2.0	0.6	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	548	466	53	1009	452	23	177	150	86	243	206
V/C Ratio(X)	0.83	0.69	0.02	0.76	0.25	0.04	0.66	0.24	0.44	0.86	0.11	0.26
Avail Cap(c_a), veh/h	215	1197	1018	141	2127	951	141	1404	1193	178	1443	1227
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	12.1	9.4	20.1	10.4	9.7	20.6	17.2	17.5	19.7	15.5	15.8
Incr Delay (d2), s/veh	21.7	1.6	0.0	19.8	0.1	0.0	28.3	0.7	2.0	21.4	0.2	0.7
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	1.1	4.0	0.1	0.7	1.1	0.2	0.3	0.5	0.8	1.4	0.3	0.6
LnGrp Delay(d),s/veh	41.7	13.6	9.4	39.9	10.6	9.8	48.9	17.8	19.6	41.1	15.7	16.5
LnGrp LOS	D	B	A	D	B	A	D	B	B	D	B	B
Approach Vol, veh/h		445			315			123			153	
Approach Delay, s/veh		17.1			14.2			22.6			28.3	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	10.5	5.6	19.4	4.8	12.2	6.0	18.9
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	* 4.2	6.0	* 4.2	5.3
Max Green Setting (Gmax), s	* 4.8	36.0	* 3.8	30.7	* 3.8	37.0	* 5.8	28.7
Max Q Clear Time (g_c+I1), s	4.0	3.9	3.1	10.4	2.4	3.4	3.5	4.5
Green Ext Time (p_c), s	0.0	0.7	0.0	3.7	0.0	0.7	0.0	3.8

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	291	184	4	201	0	8	0	28	101	56	89
Future Vol, veh/h	0	291	184	4	201	0	8	0	28	101	56	89
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	60	-	-	-	0	-	45	-	-	55
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	22	22	22	22	0	22	0	22	22	22	22
Mvmt Flow	0	310	196	4	214	0	9	0	30	107	60	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	310	0	0	562	-	310	532	532	214
Stage 1	-	-	-	-	-	-	310	-	-	222	222	-
Stage 2	-	-	-	-	-	-	252	-	-	310	310	-
Critical Hdwy	-	-	-	4.32	-	-	7.32	-	6.42	7.32	6.72	6.42
Critical Hdwy Stg 1	-	-	-	-	-	-	6.32	-	-	6.32	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.32	-	-	6.32	5.72	-
Follow-up Hdwy	-	-	-	2.398	-	-	3.698	-	3.498	3.698	4.198	3.498
Pot Cap-1 Maneuver	0	-	0	1145	-	0	409	0	686	428	426	778
Stage 1	0	-	0	-	-	0	660	0	-	737	684	-
Stage 2	0	-	0	-	-	0	710	0	-	660	624	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	1145	-	-	320	-	686	408	424	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	320	-	-	408	424	-
Stage 1	-	-	-	-	-	-	660	-	-	737	681	-
Stage 2	-	-	-	-	-	-	567	-	-	631	624	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.2	11.9	16.2
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	320	686	-	1145	-	414	778
HCM Lane V/C Ratio	0.027	0.043	-	0.004	-	0.403	0.122
HCM Control Delay (s)	16.6	10.5	-	8.2	0	19.5	10.3
HCM Lane LOS	C	B	-	A	A	C	B
HCM 95th %tile Q(veh)	0.1	0.1	-	0	-	1.9	0.4

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	185	230	209	293	0	0
Future Volume (Veh/h)	185	230	209	293	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	203	253	230	322	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			947			
pX, platoon unblocked						
vC, conflicting volume	230				889	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	230				889	230
tC, single (s)	4.2				6.5	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	84				100	100
cM capacity (veh/h)	1265				250	778

Direction, Lane #	EB 1	WB 1	WB 2
Volume Total	456	230	322
Volume Left	203	0	0
Volume Right	0	0	322
cSH	1265	1700	1700
Volume to Capacity	0.16	0.14	0.19
Queue Length 95th (ft)	14	0	0
Control Delay (s)	4.6	0.0	0.0
Lane LOS	A		
Approach Delay (s)	4.6	0.0	
Approach LOS			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	239	5	36	305	7	214	37	52	10	14	29
Future Volume (veh/h)	10	239	5	36	305	7	214	37	52	10	14	29
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1557	1557	1557	1557	1557	1900	1557	1557	1557	1557	1557	1557
Adj Flow Rate, veh/h	11	263	5	40	335	8	235	41	57	11	15	32
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	22	22	22	22	22	22	22	22	22	22	22	22
Cap, veh/h	21	435	370	64	467	11	277	413	351	21	145	123
Arrive On Green	0.01	0.28	0.28	0.04	0.31	0.31	0.19	0.27	0.27	0.01	0.09	0.09
Sat Flow, veh/h	1483	1557	1324	1483	1515	36	1483	1557	1324	1483	1557	1324
Grp Volume(v), veh/h	11	263	5	40	0	343	235	41	57	11	15	32
Grp Sat Flow(s),veh/h/ln	1483	1557	1324	1483	0	1551	1483	1557	1324	1483	1557	1324
Q Serve(g_s), s	0.3	6.8	0.1	1.2	0.0	9.2	7.2	0.9	1.5	0.3	0.4	1.1
Cycle Q Clear(g_c), s	0.3	6.8	0.1	1.2	0.0	9.2	7.2	0.9	1.5	0.3	0.4	1.1
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	21	435	370	64	0	479	277	413	351	21	145	123
V/C Ratio(X)	0.52	0.60	0.01	0.62	0.00	0.72	0.85	0.10	0.16	0.52	0.10	0.26
Avail Cap(c_a), veh/h	159	1019	866	159	0	1015	279	1192	1013	159	1066	906
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	14.6	12.2	22.0	0.0	14.4	18.4	13.0	13.2	22.9	19.4	19.7
Incr Delay (d2), s/veh	18.4	1.4	0.0	9.5	0.0	2.0	21.0	0.1	0.2	18.4	0.3	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.1	0.0	0.7	0.0	4.2	4.6	0.4	0.6	0.2	0.2	0.4
LnGrp Delay(d),s/veh	41.3	16.0	12.2	31.4	0.0	16.4	39.4	13.1	13.4	41.3	19.7	20.8
LnGrp LOS	D	B	B	C		B	D	B	B	D	B	C
Approach Vol, veh/h		279			383			333			58	
Approach Delay, s/veh		16.9			18.0			31.7			24.4	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	17.3	6.2	18.4	12.9	9.2	4.9	19.7
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 5	35.8	* 5	30.6	* 8.8	32.0	* 5	30.6
Max Q Clear Time (g_c+I1), s	2.3	3.5	3.2	8.8	9.2	3.1	2.3	11.2
Green Ext Time (p_c), s	0.0	0.6	0.0	3.4	0.0	0.5	0.0	3.2

Intersection Summary		
HCM 2010 Ctrl Delay		22.4
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	125	79	45	113	76	68	503	48	29	323	20
Future Volume (veh/h)	22	125	79	45	113	76	68	503	48	29	323	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	23	130	82	47	118	79	71	524	50	30	336	21
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	120	246	142	156	224	129	87	959	91	45	913	57
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.05	0.31	0.31	0.03	0.29	0.29
Sat Flow, veh/h	71	916	529	173	835	483	1675	3085	294	1675	3197	199
Grp Volume(v), veh/h	235	0	0	244	0	0	71	283	291	30	175	182
Grp Sat Flow(s),veh/h/ln	1516	0	0	1490	0	0	1675	1671	1707	1675	1671	1724
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	1.7	5.5	5.6	0.7	3.3	3.3
Cycle Q Clear(g_c), s	5.1	0.0	0.0	5.3	0.0	0.0	1.7	5.5	5.6	0.7	3.3	3.3
Prop In Lane	0.10		0.35	0.19		0.32	1.00		0.17	1.00		0.12
Lane Grp Cap(c), veh/h	507	0	0	509	0	0	87	519	531	45	477	492
V/C Ratio(X)	0.46	0.00	0.00	0.48	0.00	0.00	0.81	0.55	0.55	0.66	0.37	0.37
Avail Cap(c_a), veh/h	1349	0	0	1312	0	0	375	1104	1128	247	964	995
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	12.5	0.0	0.0	18.5	11.3	11.3	19.0	11.2	11.2
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.7	0.0	0.0	16.2	0.9	0.9	15.4	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	2.3	0.0	0.0	1.1	2.6	2.7	0.5	1.6	1.6
LnGrp Delay(d),s/veh	13.1	0.0	0.0	13.2	0.0	0.0	34.7	12.1	12.2	34.3	11.7	11.7
LnGrp LOS	B			B			C	B	B	C	B	B
Approach Vol, veh/h		235			244			645			387	
Approach Delay, s/veh		13.1			13.2			14.6			13.4	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	18.2		15.9	6.3	17.2		15.9
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 5.8	* 26		33.0	* 8.8	22.7		33.0
Max Q Clear Time (g_c+I1), s	2.7	7.6		7.1	3.7	5.3		7.3
Green Ext Time (p_c), s	0.0	4.7		2.8	0.0	4.6		2.8

Intersection Summary		
HCM 2010 Ctrl Delay		13.8
HCM 2010 LOS		B

Notes

Intersection	
Int Delay, s/veh	4.1

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	135	0	0	58	11	124
Future Vol, veh/h	135	0	0	58	11	124
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	85	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	24	0	0	24	24	24
Mvmt Flow	145	0	0	62	12	133

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	207	145
Stage 1	-	-	-	-	145	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	-	-	6.64	6.44
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	-	-	-	-	3.716	3.516
Pot Cap-1 Maneuver	-	0	0	-	734	847
Stage 1	-	0	0	-	831	-
Stage 2	-	0	0	-	908	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	734	847
Mov Cap-2 Maneuver	-	-	-	-	734	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	908	-

Approach	NB	SB	NW
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NWLn1	NWLn2	SBT
Capacity (veh/h)	-	734	847	-
HCM Lane V/C Ratio	-	0.016	0.157	-
HCM Control Delay (s)	-	10	10	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0	0.6	-

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	177	65	0	0	0	8	118	23	34	34	2
Future Vol, veh/h	3	177	65	0	0	0	8	118	23	34	34	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	Free	-	-	Free
Storage Length	-	-	100	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	22	22	22	0	0	0	22	22	22	22	22	22
Mvmt Flow	3	188	69	0	0	0	9	126	24	36	36	2

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	252	252	36				36	0	-	126	0	0
Stage 1	109	109	-				-	-	-	-	-	-
Stage 2	143	143	-				-	-	-	-	-	-
Critical Hdwy	6.62	6.72	6.42				4.32	-	-	4.32	-	-
Critical Hdwy Stg 1	5.62	5.72	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.62	5.72	-				-	-	-	-	-	-
Follow-up Hdwy	3.698	4.198	3.498				2.398	-	-	2.398	-	-
Pot Cap-1 Maneuver	695	618	982				1455	-	0	1346	-	0
Stage 1	868	768	-				-	-	0	-	-	0
Stage 2	837	742	-				-	-	0	-	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	672	0	982				1455	-	-	1346	-	-
Mov Cap-2 Maneuver	672	0	-				-	-	-	-	-	-
Stage 1	845	0	-				-	-	-	-	-	-
Stage 2	831	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0.5	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	1455	-	672	982	1346	-
HCM Lane V/C Ratio	0.006	-	0.285	0.07	0.027	-
HCM Control Delay (s)	7.5	0	12.5	8.9	7.7	0
HCM Lane LOS	A	A	B	A	A	A
HCM 95th %tile Q(veh)	0	-	1.2	0.2	0.1	-

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	T	R	L	T
Maximum Queue (ft)	65	170	16	120	143	138	65	58	45	60	44	45
Average Queue (ft)	18	41	2	24	44	34	15	3	11	10	13	8
95th Queue (ft)	49	112	9	77	94	91	48	25	35	34	32	31
Link Distance (ft)		2623	2623		289	289			1968			3215
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			185			100	150		150	100	
Storage Blk Time (%)						0						
Queuing Penalty (veh)						0						

Intersection: 1: Orange Avenue & North Avenue

Movement	SB
Directions Served	R
Maximum Queue (ft)	65
Average Queue (ft)	15
95th Queue (ft)	41
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	130
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	NB	NB	SB
Directions Served	R	L	R	LT
Maximum Queue (ft)	101	14	41	170
Average Queue (ft)	15	4	11	87
95th Queue (ft)	60	13	34	135
Link Distance (ft)		2392		1072
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	60		45	
Storage Blk Time (%)	0		0	20
Queuing Penalty (veh)	0		0	25

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	WB
Directions Served	LT	T
Maximum Queue (ft)	77	40
Average Queue (ft)	11	1
95th Queue (ft)	42	13
Link Distance (ft)	730	367
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	87	167	57	74	243	167	141	43	51	89	74
Average Queue (ft)	33	54	14	30	81	111	23	12	8	28	14
95th Queue (ft)	78	121	46	69	174	167	74	36	31	68	49
Link Distance (ft)		473			5162		609			1319	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		100	150		180		180	155		355
Storage Blk Time (%)		2			3	0					
Queuing Penalty (veh)		1			1	0					

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	160	328	122	68	76	139	142	135
Average Queue (ft)	52	115	57	30	38	45	48	63
95th Queue (ft)	122	222	101	57	74	89	87	107
Link Distance (ft)	5162	4573		5304	5304		5297	5297
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			245			150		
Storage Blk Time (%)						0	0	
Queuing Penalty (veh)						0	0	

Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

Movement	NW
Directions Served	L
Maximum Queue (ft)	41
Average Queue (ft)	14
95th Queue (ft)	40
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	85
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

Movement	EB	EB	NB	SB
Directions Served	LT	R	LTR	LTR
Maximum Queue (ft)	86	75	89	63
Average Queue (ft)	44	17	9	9
95th Queue (ft)	77	60	47	41
Link Distance (ft)	2392		3449	1087
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 28

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	T	R	L	T	R	L	T
Maximum Queue (ft)	83	266	16	68	84	92	42	38	66	65	92	81
Average Queue (ft)	35	109	3	28	32	19	5	7	19	23	41	16
95th Queue (ft)	79	222	12	57	70	62	24	26	46	59	74	52
Link Distance (ft)		2623	2623		289	289			1968			3215
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			185			100	150		150	100	
Storage Blk Time (%)		0				0					1	0
Queuing Penalty (veh)		0				0					1	0

Intersection: 1: Orange Avenue & North Avenue

Movement	SB
Directions Served	R
Maximum Queue (ft)	61
Average Queue (ft)	16
95th Queue (ft)	39
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	130
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	WB	NB	NB	SB
Directions Served	R	LT	L	R	LT
Maximum Queue (ft)	171	14	14	54	115
Average Queue (ft)	22	1	2	19	65
95th Queue (ft)	89	5	9	47	103
Link Distance (ft)		730	2393		1072
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	60			45	
Storage Blk Time (%)	3			1	11
Queuing Penalty (veh)	9			0	9

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	WB
Directions Served	LT	R
Maximum Queue (ft)	113	86
Average Queue (ft)	50	16
95th Queue (ft)	95	60
Link Distance (ft)	730	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		85
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	88	145	16	67	195	198	60	53	70	55	88
Average Queue (ft)	12	64	1	26	66	93	16	24	7	18	28
95th Queue (ft)	46	122	7	58	129	169	45	50	32	51	63
Link Distance (ft)		473			5162		609			1319	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		100	150		180		180	155		355
Storage Blk Time (%)		2			1	1					
Queuing Penalty (veh)		0			0	0					

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	166	188	94	180	160	74	118	121
Average Queue (ft)	80	80	45	68	79	22	50	60
95th Queue (ft)	128	146	76	123	133	56	91	106
Link Distance (ft)	5162	4573		5304	5304		5297	5297
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			245			150		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

Movement	NW	NW
Directions Served	L	R
Maximum Queue (ft)	60	55
Average Queue (ft)	6	2
95th Queue (ft)	27	18
Link Distance (ft)		1717
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

Movement	EB	EB	SB
Directions Served	LT	R	LTR
Maximum Queue (ft)	87	54	48
Average Queue (ft)	45	3	5
95th Queue (ft)	73	22	25
Link Distance (ft)	2393		1084
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)	0		
Queuing Penalty (veh)	0		

Network Summary

Network wide Queuing Penalty: 20

Appendix F: Existing plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	46	146	4	49	35	330	49	4	21	27	215	15
Future Volume (vph)	46	146	4	49	35	330	49	4	21	27	215	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1543	1624	1380		1543	3085	1380	1543	1624	1380	1543	1624
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1543	1624	1380		1543	3085	1380	1543	1624	1380	1543	1624
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	51	162	4	54	39	367	54	4	23	30	239	17
RTOR Reduction (vph)	0	0	3	0	0	0	38	0	0	26	0	0
Lane Group Flow (vph)	51	162	1	0	93	367	16	4	23	4	239	17
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	3.1	16.1	16.1		5.5	18.5	18.5	0.4	7.5	7.5	14.5	21.6
Effective Green, g (s)	3.1	16.1	16.1		5.5	18.5	18.5	0.4	7.5	7.5	14.5	21.6
Actuated g/C Ratio	0.05	0.25	0.25		0.09	0.29	0.29	0.01	0.12	0.12	0.23	0.34
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	75	413	350		134	901	403	9	192	163	353	554
v/s Ratio Prot	0.03	0.10			c0.06	c0.12		0.00	c0.01		c0.15	0.01
v/s Ratio Perm			0.00				0.01			0.00		
v/c Ratio	0.68	0.39	0.00		0.69	0.41	0.04	0.44	0.12	0.02	0.68	0.03
Uniform Delay, d1	29.6	19.5	17.6		28.1	18.0	16.0	31.3	24.9	24.7	22.3	13.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	22.4	0.6	0.0		14.4	0.3	0.0	31.3	0.3	0.1	5.1	0.0
Delay (s)	52.0	20.2	17.6		42.5	18.3	16.1	62.6	25.2	24.7	27.3	13.9
Level of Service	D	C	B		D	B	B	E	C	C	C	B
Approach Delay (s)		27.6				22.4			27.6			23.6
Approach LOS		C				C			C			C

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	19.7
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	69
Future Volume (vph)	69
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1380
Flt Permitted	1.00
Satd. Flow (perm)	1380
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	77
RTOR Reduction (vph)	51
Lane Group Flow (vph)	26
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	21.6
Effective Green, g (s)	21.6
Actuated g/C Ratio	0.34
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	470
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.06
Uniform Delay, d1	14.0
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	14.1
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	437	387	280	0	76
Future Vol, veh/h	0	437	387	280	0	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	17	3	0	3
Mvmt Flow	0	475	421	304	0	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	363
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.945
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3285
Pot Cap-1 Maneuver	0	-	-	-	0	632
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	632
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	632
HCM Lane V/C Ratio	-	-	-	0.131
HCM Control Delay (s)	-	-	-	11.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.4

Intersection	
Int Delay, s/veh	24.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	341	102	4	341	0	13	0	17	153	109	305
Future Vol, veh/h	0	341	102	4	341	0	13	0	17	153	109	305
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	60	-	-	-	0	-	45	-	-	55
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	27	27	27	27	0	27	0	27	27	27	27
Mvmt Flow	0	379	113	4	379	0	14	0	19	170	121	339

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	379	0	0	827	-	379	767	767	379
Stage 1	-	-	-	-	-	-	379	-	-	388	388	-
Stage 2	-	-	-	-	-	-	448	-	-	379	379	-
Critical Hdwy	-	-	-	4.37	-	-	7.37	-	6.47	7.37	6.77	6.47
Critical Hdwy Stg 1	-	-	-	-	-	-	6.37	-	-	6.37	5.77	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.37	-	-	6.37	5.77	-
Follow-up Hdwy	-	-	-	2.443	-	-	3.743	-	3.543	3.743	4.243	3.543
Pot Cap-1 Maneuver	0	-	0	1055	-	0	264	0	616	290	305	616
Stage 1	0	-	0	-	-	0	595	0	-	588	568	-
Stage 2	0	-	0	-	-	0	545	0	-	595	573	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	1055	-	-	81	-	616	280	303	616
Mov Cap-2 Maneuver	-	-	-	-	-	-	81	-	-	280	303	-
Stage 1	-	-	-	-	-	-	595	-	-	588	565	-
Stage 2	-	-	-	-	-	-	192	-	-	577	573	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	31.8	53.1
HCM LOS			D	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	81	616	-	1055	-	289	616
HCM Lane V/C Ratio	0.178	0.031	-	0.004	-	1.007	0.55
HCM Control Delay (s)	58.9	11	-	8.4	0	94.3	17.8
HCM Lane LOS	F	B	-	A	A	F	C
HCM 95th %tile Q(veh)	0.6	0.1	-	0	-	10.6	3.3

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	201	295	363	85	0	0
Future Volume (Veh/h)	201	295	363	85	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	214	314	386	90	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			947			
pX, platoon unblocked						
vC, conflicting volume	386				1128	386
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	386				1128	386
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	79				100	100
cM capacity (veh/h)	1026				180	666

Direction, Lane #	EB 1	WB 1	WB 2
Volume Total	528	386	90
Volume Left	214	0	0
Volume Right	0	0	90
cSH	1026	1700	1700
Volume to Capacity	0.21	0.23	0.05
Queue Length 95th (ft)	20	0	0
Control Delay (s)	5.3	0.0	0.0
Lane LOS	A		
Approach Delay (s)	5.3	0.0	
Approach LOS			

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	254	24	28	255	27	275	29	40	8	25	16
Future Volume (veh/h)	34	254	24	28	255	27	275	29	40	8	25	16
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1439	1439	1439	1439	1439	1900	1439	1439	1439	1439	1439	1439
Adj Flow Rate, veh/h	42	314	30	35	315	33	340	36	49	10	31	20
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	32	32	32	32	32	32	32	32	32	32	32	32
Cap, veh/h	57	453	385	50	397	42	386	492	418	17	105	89
Arrive On Green	0.04	0.31	0.31	0.04	0.31	0.31	0.28	0.34	0.34	0.01	0.07	0.07
Sat Flow, veh/h	1371	1439	1223	1371	1281	134	1371	1439	1223	1371	1439	1223
Grp Volume(v), veh/h	42	314	30	35	0	348	340	36	49	10	31	20
Grp Sat Flow(s),veh/h/ln	1371	1439	1223	1371	0	1416	1371	1439	1223	1371	1439	1223
Q Serve(g_s), s	1.9	12.1	1.1	1.6	0.0	14.2	15.0	1.1	1.7	0.5	1.3	1.0
Cycle Q Clear(g_c), s	1.9	12.1	1.1	1.6	0.0	14.2	15.0	1.1	1.7	0.5	1.3	1.0
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	57	453	385	50	0	438	386	492	418	17	105	89
V/C Ratio(X)	0.74	0.69	0.08	0.70	0.00	0.79	0.88	0.07	0.12	0.57	0.29	0.22
Avail Cap(c_a), veh/h	113	698	593	109	0	682	626	1273	1082	109	730	620
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	19.0	15.2	30.1	0.0	19.9	21.7	14.0	14.2	31.0	27.7	27.6
Incr Delay (d2), s/veh	17.2	1.9	0.1	16.4	0.0	3.5	8.5	0.1	0.1	26.3	1.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.0	0.4	0.8	0.0	5.9	6.6	0.4	0.6	0.3	0.6	0.4
LnGrp Delay(d),s/veh	47.1	20.9	15.3	46.5	0.0	23.5	30.2	14.1	14.4	57.2	29.2	28.8
LnGrp LOS	D	C	B	D		C	C	B	B	E	C	C
Approach Vol, veh/h		386			383			425			61	
Approach Delay, s/veh		23.3			25.6			27.0			33.7	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	26.5	6.5	25.1	22.0	9.5	6.8	24.8
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 5	55.8	* 5	30.6	* 29	32.0	* 5.2	30.4
Max Q Clear Time (g_c+I1), s	2.5	3.7	3.6	14.1	17.0	3.3	3.9	16.2
Green Ext Time (p_c), s	0.0	0.6	0.0	3.5	0.8	0.5	0.0	3.3

Intersection Summary	
HCM 2010 Ctrl Delay	25.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	107	61	63	155	40	87	225	40	63	298	51
Future Volume (veh/h)	53	107	61	63	155	40	87	225	40	63	298	51
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	63	127	73	75	185	48	104	268	48	75	355	61
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	179	264	129	185	316	73	131	739	131	90	675	115
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.08	0.26	0.26	0.05	0.24	0.24
Sat Flow, veh/h	230	850	415	248	1020	234	1675	2840	502	1675	2858	487
Grp Volume(v), veh/h	263	0	0	308	0	0	104	156	160	75	206	210
Grp Sat Flow(s),veh/h/ln	1494	0	0	1502	0	0	1675	1671	1671	1675	1671	1673
Q Serve(g_s), s	0.0	0.0	0.0	1.2	0.0	0.0	2.5	3.1	3.2	1.8	4.4	4.5
Cycle Q Clear(g_c), s	5.6	0.0	0.0	6.9	0.0	0.0	2.5	3.1	3.2	1.8	4.4	4.5
Prop In Lane	0.24		0.28	0.24		0.16	1.00		0.30	1.00		0.29
Lane Grp Cap(c), veh/h	572	0	0	574	0	0	131	435	435	90	395	395
V/C Ratio(X)	0.46	0.00	0.00	0.54	0.00	0.00	0.80	0.36	0.37	0.83	0.52	0.53
Avail Cap(c_a), veh/h	1246	0	0	1266	0	0	439	1013	1013	276	839	840
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	0.0	12.1	0.0	0.0	18.7	12.5	12.5	19.3	13.7	13.8
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.8	0.0	0.0	10.4	0.5	0.5	17.1	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	3.1	0.0	0.0	1.5	1.5	1.5	1.3	2.1	2.2
LnGrp Delay(d),s/veh	12.4	0.0	0.0	12.9	0.0	0.0	29.1	13.0	13.0	36.4	14.8	14.9
LnGrp LOS	B			B			C	B	B	D	B	B
Approach Vol, veh/h		263			308			420			491	
Approach Delay, s/veh		12.4			12.9			17.0			18.1	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	16.7		18.1	7.4	15.7		18.1
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 6.8	* 25		33.0	* 11	20.7		33.0
Max Q Clear Time (g_c+I1), s	3.8	5.2		7.6	4.5	6.5		8.9
Green Ext Time (p_c), s	0.0	3.6		3.5	0.1	3.2		3.4

Intersection Summary	
HCM 2010 Ctrl Delay	15.7
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	6.2

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	92	0	0	85	28	219
Future Vol, veh/h	92	0	0	85	28	219
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	85	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	33	0	0	33	33	33
Mvmt Flow	103	0	0	96	31	246

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	199	103
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	-	-	-	-	6.73	6.53
Critical Hdwy Stg 1	-	-	-	-	5.73	-
Critical Hdwy Stg 2	-	-	-	-	5.73	-
Follow-up Hdwy	-	-	-	-	3.797	3.597
Pot Cap-1 Maneuver	-	0	0	-	725	874
Stage 1	-	0	0	-	849	-
Stage 2	-	0	0	-	856	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	725	874
Mov Cap-2 Maneuver	-	-	-	-	725	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	856	-

Approach	NB	SB	NW
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NWLn1	NWLn2	SBT
Capacity (veh/h)	-	725	874	-
HCM Lane V/C Ratio	-	0.043	0.282	-
HCM Control Delay (s)	-	10.2	10.7	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	1.2	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	92	90	0	0	0	20	97	26	40	60	13
Future Vol, veh/h	5	92	90	0	0	0	20	97	26	40	60	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	Free	-	-	Free
Storage Length	-	-	100	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	5	100	98	0	0	0	22	105	28	43	65	14

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	301	301	65				65	0	-	105	0	0
Stage 1	152	152	-				-	-	-	-	-	-
Stage 2	149	149	-				-	-	-	-	-	-
Critical Hdwy	6.9	7	6.7				4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	5.9	6	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	6	-				-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75				2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	601	540	880				1280	-	0	1234	-	0
Stage 1	771	689	-				-	-	0	-	-	0
Stage 2	774	691	-				-	-	0	-	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	569	0	880				1280	-	-	1234	-	-
Mov Cap-2 Maneuver	569	0	-				-	-	-	-	-	-
Stage 1	743	0	-				-	-	-	-	-	-
Stage 2	760	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.3	1.3	3.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	1280	-	569	880	1234	-
HCM Lane V/C Ratio	0.017	-	0.185	0.111	0.035	-
HCM Control Delay (s)	7.9	0	12.8	9.6	8	0
HCM Lane LOS	A	A	B	A	A	A
HCM 95th %tile Q(veh)	0.1	-	0.7	0.4	0.1	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	64	336	9	42	43	244	19	13	46	59	215	24
Future Volume (vph)	64	336	9	42	43	244	19	13	46	59	215	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	1638	1392		1556	3112	1392	1556	1638	1392	1556	1638
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1556	1638	1392		1556	3112	1392	1556	1638	1392	1556	1638
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	72	378	10	47	48	274	21	15	52	66	242	27
RTOR Reduction (vph)	0	0	7	0	0	0	15	0	0	55	0	0
Lane Group Flow (vph)	72	378	3	0	95	274	6	15	52	11	242	27
Heavy Vehicles (%)	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	6.3	20.8	20.8		5.2	19.7	19.7	0.5	11.6	11.6	13.9	25.0
Effective Green, g (s)	6.3	20.8	20.8		5.2	19.7	19.7	0.5	11.6	11.6	13.9	25.0
Actuated g/C Ratio	0.09	0.29	0.29		0.07	0.28	0.28	0.01	0.16	0.16	0.20	0.35
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	137	478	406		113	861	385	10	266	226	303	575
v/s Ratio Prot	0.05	c0.23			c0.06	0.09		0.01	c0.03		c0.16	0.02
v/s Ratio Perm			0.00				0.00			0.01		
v/c Ratio	0.53	0.79	0.01		0.84	0.32	0.02	1.50	0.20	0.05	0.80	0.05
Uniform Delay, d1	31.0	23.2	17.9		32.6	20.4	18.7	35.4	25.8	25.1	27.3	15.2
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	8.7	0.0		40.1	0.2	0.0	478.8	0.4	0.1	13.6	0.0
Delay (s)	34.6	31.9	17.9		72.7	20.6	18.7	514.1	26.1	25.2	41.0	15.3
Level of Service	C	C	B		E	C	B	F	C	C	D	B
Approach Delay (s)		32.0				33.2			80.7			33.3
Approach LOS		C				C			F			C

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	71.2	Sum of lost time (s)	19.7
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	68
Future Volume (vph)	68
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1392
Flt Permitted	1.00
Satd. Flow (perm)	1392
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	76
RTOR Reduction (vph)	49
Lane Group Flow (vph)	27
Heavy Vehicles (%)	16%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	25.0
Effective Green, g (s)	25.0
Actuated g/C Ratio	0.35
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	488
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.05
Uniform Delay, d1	15.3
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	15.3
Level of Service	B
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	652	281	228	0	67
Future Vol, veh/h	0	652	281	228	0	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	17	3	17	3
Mvmt Flow	0	709	305	248	0	73

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	277
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.945
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3285
Pot Cap-1 Maneuver	0	-	-	-	0	718
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	718
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	718
HCM Lane V/C Ratio	-	-	-	0.101
HCM Control Delay (s)	-	-	-	10.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection	
Int Delay, s/veh	8.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	477	208	4	278	0	12	0	28	101	56	236
Future Vol, veh/h	0	477	208	4	278	0	12	0	28	101	56	236
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	60	-	-	-	0	-	45	-	-	55
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	22	22	22	22	0	22	0	22	22	22	22
Mvmt Flow	0	507	221	4	296	0	13	0	30	107	60	251

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	507	0	0	841	-	507	811	811	296
Stage 1	-	-	-	-	-	-	507	-	-	304	304	-
Stage 2	-	-	-	-	-	-	334	-	-	507	507	-
Critical Hdwy	-	-	-	4.32	-	-	7.32	-	6.42	7.32	6.72	6.42
Critical Hdwy Stg 1	-	-	-	-	-	-	6.32	-	-	6.32	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.32	-	-	6.32	5.72	-
Follow-up Hdwy	-	-	-	2.398	-	-	3.698	-	3.498	3.698	4.198	3.498
Pot Cap-1 Maneuver	0	-	0	963	-	0	263	0	528	276	292	699
Stage 1	0	-	0	-	-	0	513	0	-	665	628	-
Stage 2	0	-	0	-	-	0	640	0	-	513	508	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	963	-	-	141	-	528	259	291	699
Mov Cap-2 Maneuver	-	-	-	-	-	-	141	-	-	259	291	-
Stage 1	-	-	-	-	-	-	513	-	-	665	625	-
Stage 2	-	-	-	-	-	-	369	-	-	484	508	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	18.5	22.9
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	141	528	-	963	-	270	699
HCM Lane V/C Ratio	0.091	0.056	-	0.004	-	0.619	0.359
HCM Control Delay (s)	33.1	12.2	-	8.8	0	37.8	13
HCM Lane LOS	D	B	-	A	A	E	B
HCM 95th %tile Q(veh)	0.3	0.2	-	0	-	3.8	1.6

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	309	292	286	293	0	0
Future Volume (Veh/h)	309	292	286	293	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	340	321	314	322	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			947			
pX, platoon unblocked						
vC, conflicting volume	314				1315	314
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	314				1315	314
tC, single (s)	4.2				6.5	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	71				100	100
cM capacity (veh/h)	1176				116	697

Direction, Lane #	EB 1	WB 1	WB 2
Volume Total	661	314	322
Volume Left	340	0	0
Volume Right	0	0	322
cSH	1176	1700	1700
Volume to Capacity	0.29	0.18	0.19
Queue Length 95th (ft)	30	0	0
Control Delay (s)	6.4	0.0	0.0
Lane LOS	A		
Approach Delay (s)	6.4	0.0	
Approach LOS			

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	300	5	36	360	7	234	37	52	10	14	31
Future Volume (veh/h)	11	300	5	36	360	7	234	37	52	10	14	31
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1557	1557	1557	1557	1557	1900	1557	1557	1557	1557	1557	1557
Adj Flow Rate, veh/h	12	330	5	40	396	8	257	41	57	11	15	34
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	22	22	22	22	22	22	22	22	22	22	22	22
Cap, veh/h	23	499	424	63	529	11	261	391	332	21	138	118
Arrive On Green	0.02	0.32	0.32	0.04	0.35	0.35	0.18	0.25	0.25	0.01	0.09	0.09
Sat Flow, veh/h	1483	1557	1324	1483	1521	31	1483	1557	1324	1483	1557	1324
Grp Volume(v), veh/h	12	330	5	40	0	404	257	41	57	11	15	34
Grp Sat Flow(s),veh/h/ln	1483	1557	1324	1483	0	1552	1483	1557	1324	1483	1557	1324
Q Serve(g_s), s	0.4	9.1	0.1	1.3	0.0	11.5	8.6	1.0	1.7	0.4	0.4	1.2
Cycle Q Clear(g_c), s	0.4	9.1	0.1	1.3	0.0	11.5	8.6	1.0	1.7	0.4	0.4	1.2
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	23	499	424	63	0	539	261	391	332	21	138	118
V/C Ratio(X)	0.53	0.66	0.01	0.63	0.00	0.75	0.98	0.10	0.17	0.52	0.11	0.29
Avail Cap(c_a), veh/h	148	953	810	148	0	950	261	1115	948	148	997	848
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	14.6	11.6	23.5	0.0	14.4	20.5	14.4	14.7	24.5	20.9	21.3
Incr Delay (d2), s/veh	17.6	1.5	0.0	10.0	0.0	2.1	51.1	0.1	0.2	18.7	0.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.1	0.0	0.7	0.0	5.1	7.2	0.4	0.6	0.3	0.2	0.5
LnGrp Delay(d),s/veh	42.0	16.2	11.6	33.5	0.0	16.5	71.6	14.5	14.9	43.2	21.3	22.6
LnGrp LOS	D	B	B	C		B	E	B	B	D	C	C
Approach Vol, veh/h		347			444			355			60	
Approach Delay, s/veh		17.0			18.0			55.9			26.1	
Approach LOS		B			B			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	17.4	6.3	21.3	13.0	9.3	5.0	22.7
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 5	35.8	* 5	30.6	* 8.8	32.0	* 5	30.6
Max Q Clear Time (g_c+I1), s	2.4	3.7	3.3	11.1	10.6	3.2	2.4	13.5
Green Ext Time (p_c), s	0.0	0.6	0.0	4.1	0.0	0.5	0.0	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	154	80	45	123	76	69	503	48	29	323	56
Future Volume (veh/h)	44	154	80	45	123	76	69	503	48	29	323	56
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	46	160	83	47	128	79	72	524	50	30	336	58
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	141	277	128	151	258	139	87	944	90	45	803	137
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.05	0.31	0.31	0.03	0.28	0.28
Sat Flow, veh/h	140	933	432	164	871	467	1675	3085	294	1675	2856	488
Grp Volume(v), veh/h	289	0	0	254	0	0	72	283	291	30	195	199
Grp Sat Flow(s),veh/h/ln	1505	0	0	1502	0	0	1675	1671	1707	1675	1671	1673
Q Serve(g_s), s	1.0	0.0	0.0	0.0	0.0	0.0	1.8	5.9	6.0	0.7	4.0	4.1
Cycle Q Clear(g_c), s	6.7	0.0	0.0	5.7	0.0	0.0	1.8	5.9	6.0	0.7	4.0	4.1
Prop In Lane	0.16		0.29	0.19		0.31	1.00		0.17	1.00		0.29
Lane Grp Cap(c), veh/h	546	0	0	548	0	0	87	512	523	45	470	470
V/C Ratio(X)	0.53	0.00	0.00	0.46	0.00	0.00	0.83	0.55	0.56	0.67	0.42	0.42
Avail Cap(c_a), veh/h	1256	0	0	1240	0	0	353	1039	1061	232	907	908
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	0.0	0.0	12.4	0.0	0.0	19.6	12.1	12.1	20.2	12.2	12.3
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.6	0.0	0.0	17.6	0.9	0.9	15.9	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	2.5	0.0	0.0	1.2	2.8	2.9	0.5	1.9	2.0
LnGrp Delay(d),s/veh	13.5	0.0	0.0	13.0	0.0	0.0	37.2	13.1	13.1	36.1	12.8	12.9
LnGrp LOS	B			B			D	B	B	D	B	B
Approach Vol, veh/h		289			254			646			424	
Approach Delay, s/veh		13.5			13.0			15.8			14.5	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	18.8		17.7	6.4	17.8		17.7
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 5.8	* 26		33.0	* 8.8	22.7		33.0
Max Q Clear Time (g_c+I1), s	2.7	8.0		8.7	3.8	6.1		7.7
Green Ext Time (p_c), s	0.0	4.8		3.2	0.0	4.7		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	14.6
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	4.5

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑			↑	↰	↱
Traffic Vol, veh/h	135	0	0	58	11	144
Future Vol, veh/h	135	0	0	58	11	144
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	85	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	24	0	0	24	24	24
Mvmt Flow	145	0	0	62	12	155

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	207	145
Stage 1	-	-	-	-	145	-
Stage 2	-	-	-	-	62	-
Critical Hdwy	-	-	-	-	6.64	6.44
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	-	-	-	-	3.716	3.516
Pot Cap-1 Maneuver	-	0	0	-	734	847
Stage 1	-	0	0	-	831	-
Stage 2	-	0	0	-	908	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	734	847
Mov Cap-2 Maneuver	-	-	-	-	734	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	908	-

Approach	NB	SB	NW
HCM Control Delay, s	0	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NWLn1	NWLn2	SBT
Capacity (veh/h)	-	734	847	-
HCM Lane V/C Ratio	-	0.016	0.183	-
HCM Control Delay (s)	-	10	10.2	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0	0.7	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	199	67	0	0	0	12	118	23	34	34	2
Future Vol, veh/h	3	199	67	0	0	0	12	118	23	34	34	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	Free	-	-	Free
Storage Length	-	-	100	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	22	22	22	0	0	0	22	22	22	22	22	22
Mvmt Flow	3	212	71	0	0	0	13	126	24	36	36	2

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	260	260	36				36	0	-	126	0	0
Stage 1	109	109	-				-	-	-	-	-	-
Stage 2	151	151	-				-	-	-	-	-	-
Critical Hdwy	6.62	6.72	6.42				4.32	-	-	4.32	-	-
Critical Hdwy Stg 1	5.62	5.72	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.62	5.72	-				-	-	-	-	-	-
Follow-up Hdwy	3.698	4.198	3.498				2.398	-	-	2.398	-	-
Pot Cap-1 Maneuver	688	612	982				1455	-	0	1346	-	0
Stage 1	868	768	-				-	-	0	-	-	0
Stage 2	830	736	-				-	-	0	-	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	663	0	982				1455	-	-	1346	-	-
Mov Cap-2 Maneuver	663	0	-				-	-	-	-	-	-
Stage 1	845	0	-				-	-	-	-	-	-
Stage 2	822	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12	0.7	3.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	1455	-	663	982	1346	-
HCM Lane V/C Ratio	0.009	-	0.324	0.073	0.027	-
HCM Control Delay (s)	7.5	0	13	9	7.7	0
HCM Lane LOS	A	A	B	A	A	A
HCM 95th %tile Q(veh)	0	-	1.4	0.2	0.1	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	341	102	4	341	0	13	0	17	153	109	305
Future Volume (veh/h)	0	341	102	4	341	0	13	0	17	153	109	305
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	0	1496	1496	1900	1496	0	1496	0	1496	1496	1496	1496
Adj Flow Rate, veh/h	0	379	0	4	379	0	14	0	19	170	121	0
Adj No. of Lanes	0	1	1	0	1	0	1	0	1	1	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	27	27	27	27	0	27	0	27	27	27	27
Cap, veh/h	0	572	486	4	408	0	66	0	0	288	149	127
Arrive On Green	0.00	0.26	0.00	0.28	0.28	0.00	0.05	0.00	0.00	0.20	0.10	0.00
Sat Flow, veh/h	0	1496	1272	16	1480	0	1425	14		1425	1496	1272
Grp Volume(v), veh/h	0	379	0	383	0	0	14	50.3		170	121	0
Grp Sat Flow(s),veh/h/ln	0	1496	1272	1495	0	0	1425	D		1425	1496	1272
Q Serve(g_s), s	0.0	24.1	0.0	26.4	0.0	0.0	1.0			11.5	8.4	0.0
Cycle Q Clear(g_c), s	0.0	24.1	0.0	26.4	0.0	0.0	1.0			11.5	8.4	0.0
Prop In Lane	0.00		1.00	0.01		0.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	572	486	412	0	0	66			288	149	127
V/C Ratio(X)	0.00	0.66	0.00	0.93	0.00	0.00	0.21			0.59	0.81	0.00
Avail Cap(c_a), veh/h	0	572	486	457	0	0	67			288	209	178
HCM Platoon Ratio	1.00	0.67	0.67	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	0.00	1.00			1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	33.3	0.0	37.4	0.0	0.0	48.7			38.3	46.8	0.0
Incr Delay (d2), s/veh	0.0	2.9	0.0	29.7	0.0	0.0	1.6			3.1	15.1	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
%ile BackOfQ(50%),veh/ln	0.0	10.4	0.0	14.3	0.0	0.0	0.4			4.7	4.1	0.0
LnGrp Delay(d),s/veh	0.0	36.1	0.0	67.1	0.0	0.0	50.3			41.4	61.8	0.0
LnGrp LOS		D		E			D			D	E	
Approach Vol, veh/h		379			383						291	
Approach Delay, s/veh		36.1			67.1						49.9	
Approach LOS		D			E						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1			4	5	6		8
Phs Duration (G+Y+Rc), s	25.6			45.8	9.1	16.6		34.5
Change Period (Y+Rc), s	4.2			5.3	4.2	* 6		5.3
Max Green Setting (Gmax), s	14.8			33.0	5.0	* 15		32.4
Max Q Clear Time (g_c+I1), s	13.5			26.1	3.0	10.4		28.4
Green Ext Time (p_c), s	0.1			1.2	0.0	0.2		0.8

Intersection Summary		
HCM 2010 Ctrl Delay		51.2
HCM 2010 LOS		D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	477	208	4	278	0	12	0	28	101	56	236
Future Volume (veh/h)	0	477	208	4	278	0	12	0	28	101	56	236
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	0	1557	1557	1900	1557	0	1557	0	1557	1557	1557	1557
Adj Flow Rate, veh/h	0	507	0	4	296	0	13	0	30	107	60	0
Adj No. of Lanes	0	1	1	0	1	0	1	0	1	1	1	1
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, %	0	22	22	22	22	0	22	0	22	22	22	22
Cap, veh/h	0	774	658	4	328	0	65	0	0	229	88	74
Arrive On Green	0.00	0.99	0.00	0.21	0.21	0.00	0.04	0.00	0.00	0.15	0.06	0.00
Sat Flow, veh/h	0	1557	1324	21	1536	0	1483	13		1483	1557	1324
Grp Volume(v), veh/h	0	507	0	300	0	0	13	52.2		107	60	0
Grp Sat Flow(s),veh/h/ln	0	1557	1324	1556	0	0	1483	D		1483	1557	1324
Q Serve(g_s), s	0.0	0.6	0.0	20.7	0.0	0.0	0.9			7.2	4.2	0.0
Cycle Q Clear(g_c), s	0.0	0.6	0.0	20.7	0.0	0.0	0.9			7.2	4.2	0.0
Prop In Lane	0.00		1.00	0.01		0.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	774	658	333	0	0	65			229	88	74
V/C Ratio(X)	0.00	0.65	0.00	0.90	0.00	0.00	0.20			0.47	0.68	0.00
Avail Cap(c_a), veh/h	0	774	658	417	0	0	67			229	170	144
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	0.00	0.00	1.00			1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.2	0.0	42.1	0.0	0.0	50.7			42.4	50.9	0.0
Incr Delay (d2), s/veh	0.0	2.0	0.0	29.8	0.0	0.0	1.5			1.5	9.1	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
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.0	11.6	0.0	0.0	0.4			3.1	2.0	0.0
LnGrp Delay(d),s/veh	0.0	2.2	0.0	71.9	0.0	0.0	52.2			43.8	60.0	0.0
LnGrp LOS		A		E			D			D	E	
Approach Vol, veh/h		507			300						167	
Approach Delay, s/veh		2.2			71.9						49.6	
Approach LOS		A			E						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1			4	5	6		8
Phs Duration (G+Y+Rc), s	21.2			60.0	9.0	12.2		28.8
Change Period (Y+Rc), s	4.2			5.3	4.2	* 6		5.3
Max Green Setting (Gmax), s	11.4			42.7	5.0	* 12		29.5
Max Q Clear Time (g_c+I1), s	9.2			2.6	2.9	6.2		22.7
Green Ext Time (p_c), s	0.1			3.3	0.0	0.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	32.1
HCM 2010 LOS	C

Notes

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	UL	T	T	R	L	T	R	L	T
Maximum Queue (ft)	97	213	12	159	132	130	68	24	63	44	174	342
Average Queue (ft)	37	70	1	65	52	52	15	2	16	13	132	58
95th Queue (ft)	84	153	6	121	108	104	45	13	44	37	198	220
Link Distance (ft)		2623	2623		289	289			1968			3215
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			185			100	150		150	100	
Storage Blk Time (%)						1					24	
Queuing Penalty (veh)						1					20	

Intersection: 1: Orange Avenue & North Avenue

Movement	SB
Directions Served	R
Maximum Queue (ft)	245
Average Queue (ft)	32
95th Queue (ft)	105
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	130
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: North Avenue & Driveway

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	154	67
Average Queue (ft)	5	34
95th Queue (ft)	51	58
Link Distance (ft)	289	134
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	T	R	LT	L	R	L	T	R
Maximum Queue (ft)	469	260	450	87	60	312	178	240
Average Queue (ft)	255	38	208	18	12	128	99	28
95th Queue (ft)	418	183	403	54	38	229	165	134
Link Distance (ft)	469		730	2392			1060	
Upstream Blk Time (%)	1							
Queuing Penalty (veh)	5							
Storage Bay Dist (ft)		60			45	300		300
Storage Blk Time (%)	50	0		10	3	0		
Queuing Penalty (veh)	51	0		2	0	2		

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	WB	WB
Directions Served	LT	T	R
Maximum Queue (ft)	270	22	86
Average Queue (ft)	109	2	6
95th Queue (ft)	221	13	36
Link Distance (ft)	730	367	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			85
Storage Blk Time (%)			0
Queuing Penalty (veh)			0

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	90	292	67	95	220	295	446	56	47	76	51
Average Queue (ft)	28	121	8	27	120	138	41	14	7	23	14
95th Queue (ft)	67	222	32	70	214	242	210	41	32	58	41
Link Distance (ft)		473			5162		609			1319	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		100	150		180		180	155		355
Storage Blk Time (%)		9			5	4					
Queuing Penalty (veh)		5			1	3					

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	290	224	113	92	135	97	111	137
Average Queue (ft)	102	102	51	49	54	45	57	67
95th Queue (ft)	235	180	97	83	101	86	96	102
Link Distance (ft)	5162	4573		5304	5304		5297	5297
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			245			150		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

Movement	NW	NW
Directions Served	L	R
Maximum Queue (ft)	47	74
Average Queue (ft)	13	4
95th Queue (ft)	38	30
Link Distance (ft)		1717
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

Movement	EB	EB	NB	SB
Directions Served	LT	R	LTR	LTR
Maximum Queue (ft)	100	73	75	25
Average Queue (ft)	48	9	4	2
95th Queue (ft)	79	42	29	14
Link Distance (ft)	2392		3449	1087
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 90

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	L	T	R	UL	T	T	R	L	T	R	L	T
Maximum Queue (ft)	180	272	15	140	106	107	21	44	167	63	174	301
Average Queue (ft)	67	139	2	72	41	51	6	6	42	20	122	52
95th Queue (ft)	123	246	11	122	97	105	20	25	96	46	175	200
Link Distance (ft)		2623	2623		289	289			1968			3215
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			185			100	150		150	100	
Storage Blk Time (%)		0				1			1		27	
Queuing Penalty (veh)		0				0			0		25	

Intersection: 1: Orange Avenue & North Avenue

Movement	SB
Directions Served	R
Maximum Queue (ft)	245
Average Queue (ft)	38
95th Queue (ft)	131
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	130
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: North Avenue & Driveway

Movement	EB	SB
Directions Served	T	R
Maximum Queue (ft)	119	75
Average Queue (ft)	17	31
95th Queue (ft)	78	59
Link Distance (ft)	289	137
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	EB	WB	NB	NB	SB	SB	SB
Directions Served	T	R	LT	L	R	L	T	R
Maximum Queue (ft)	483	260	413	56	75	209	155	164
Average Queue (ft)	322	181	163	5	25	83	50	15
95th Queue (ft)	500	377	314	24	63	166	112	88
Link Distance (ft)	469		730	2393			1060	
Upstream Blk Time (%)	2							
Queuing Penalty (veh)	13							
Storage Bay Dist (ft)		60			45	300		300
Storage Blk Time (%)	46			0	11			
Queuing Penalty (veh)	95			0	1			

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	WB
Directions Served	LT	R
Maximum Queue (ft)	412	89
Average Queue (ft)	117	12
95th Queue (ft)	279	50
Link Distance (ft)	730	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		85
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	TR	L	T	R	L	T	R
Maximum Queue (ft)	66	337	21	106	338	288	184	80	87	76	138
Average Queue (ft)	16	137	1	47	110	163	31	23	20	12	33
95th Queue (ft)	50	269	7	105	229	254	90	53	62	40	93
Link Distance (ft)		473			5162		609			1319	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	150		100	150		180		180	155		355
Storage Blk Time (%)		13			3	8	0				
Queuing Penalty (veh)		2			1	7	0				

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	318	177	151	164	236	96	222	191
Average Queue (ft)	132	80	53	71	86	30	57	68
95th Queue (ft)	261	137	106	126	156	76	117	129
Link Distance (ft)	5162	4573		5304	5304		5297	5297
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			245			150		
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

Movement	NW	NW
Directions Served	L	R
Maximum Queue (ft)	63	74
Average Queue (ft)	13	4
95th Queue (ft)	45	31
Link Distance (ft)		1717
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

Movement	EB	EB	NB	SB
Directions Served	LT	R	LTR	LTR
Maximum Queue (ft)	103	37	80	74
Average Queue (ft)	48	1	4	6
95th Queue (ft)	84	12	28	32
Link Distance (ft)	2393		3449	1084
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			

Network Summary

Network wide Queuing Penalty: 146

Appendix G: Near Term plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	67	193	134	49	735	609	49	31	93	194	215	339
Future Volume (vph)	67	193	134	49	735	609	49	31	93	194	215	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1543	1624	1380		1543	3085	1380	1543	1624	1380	1543	1624
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1543	1624	1380		1543	3085	1380	1543	1624	1380	1543	1624
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	214	149	54	817	677	54	34	103	216	239	377
RTOR Reduction (vph)	0	0	118	0	0	0	34	0	0	164	0	0
Lane Group Flow (vph)	74	214	31	0	871	677	20	34	103	52	239	377
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	7.4	18.7	18.7		21.8	33.1	33.1	2.5	21.5	21.5	7.1	26.1
Effective Green, g (s)	7.4	18.7	18.7		21.8	33.1	33.1	2.5	21.5	21.5	7.1	26.1
Actuated g/C Ratio	0.08	0.21	0.21		0.25	0.37	0.37	0.03	0.24	0.24	0.08	0.29
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	128	341	290		378	1149	514	43	393	334	123	477
v/s Ratio Prot	0.05	0.13			c0.56	c0.22		0.02	0.06		c0.15	c0.23
v/s Ratio Perm			0.02				0.01			0.04		
v/c Ratio	0.58	0.63	0.11		2.30	0.59	0.04	0.79	0.26	0.16	1.94	0.79
Uniform Delay, d1	39.2	31.9	28.3		33.5	22.4	17.7	42.9	27.2	26.5	40.9	28.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.2	3.6	0.2		595.2	0.8	0.0	63.1	0.4	0.2	452.7	8.7
Delay (s)	45.4	35.5	28.5		628.7	23.2	17.8	106.0	27.6	26.7	493.5	37.5
Level of Service	D	D	C		F	C	B	F	C	C	F	D
Approach Delay (s)		34.8				352.2			34.6			170.6
Approach LOS		C				F			C			F

Intersection Summary			
HCM 2000 Control Delay	228.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	19.7
Intersection Capacity Utilization	93.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	166
Future Volume (vph)	166
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1380
Flt Permitted	1.00
Satd. Flow (perm)	1380
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	184
RTOR Reduction (vph)	100
Lane Group Flow (vph)	84
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	26.1
Effective Green, g (s)	26.1
Actuated g/C Ratio	0.29
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	405
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.21
Uniform Delay, d1	23.6
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	23.8
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection						
Int Delay, s/veh	0.7					

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	651	1366	280	0	76
Future Vol, veh/h	0	651	1366	280	0	76
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	17	3	0	3
Mvmt Flow	0	708	1485	304	0	83

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	895
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.945
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3285
Pot Cap-1 Maneuver	0	-	-	-	0	283
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	283
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.9
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	283
HCM Lane V/C Ratio	-	-	-	0.292
HCM Control Delay (s)	-	-	-	22.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.2

Intersection	
Int Delay, s/veh	536.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	549	108	4	842	0	13	0	17	153	220	783
Future Vol, veh/h	0	549	108	4	842	0	13	0	17	153	220	783
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	60	-	-	-	0	-	45	-	-	55
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	0	27	27	27	27	0	27	0	27	27	27	27
Mvmt Flow	0	610	120	4	936	0	14	0	19	170	244	870

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	610	0	0	1677	-	610	1554	1554	936
Stage 1	-	-	-	-	-	-	610	-	-	944	944	-
Stage 2	-	-	-	-	-	-	1067	-	-	610	610	-
Critical Hdwy	-	-	-	4.37	-	-	7.37	-	6.47	7.37	6.77	6.47
Critical Hdwy Stg 1	-	-	-	-	-	-	6.37	-	-	6.37	5.77	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.37	-	-	6.37	5.77	-
Follow-up Hdwy	-	-	-	2.443	-	-	3.743	-	3.543	3.743	4.243	3.543
Pot Cap-1 Maneuver	0	-	0	858	-	0	66	0	452	~ 81	~ 100	~ 289
Stage 1	0	-	0	-	-	0	441	0	-	284	310	-
Stage 2	0	-	0	-	-	0	241	0	-	441	448	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	858	-	-	-	-	452	~ 77	~ 99	~ 289
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 77	~ 99	-
Stage 1	-	-	-	-	-	-	441	-	-	284	307	-
Stage 2	-	-	-	-	-	-	-	-	-	423	448	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0		$ 1198.7
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	452	-	858	-	89	289
HCM Lane V/C Ratio	-	0.042	-	0.005	-	4.657	3.01
HCM Control Delay (s)	-	13.3	-	9.2	0	$ 1740.9	$ 940.4
HCM Lane LOS	-	B	-	A	A	F	F
HCM 95th %tile Q(veh)	-	0.1	-	0	-	44.2	76.9

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	307	397	864	108	0	0
Future Volume (Veh/h)	307	397	864	108	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	327	422	919	115	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			947			
pX, platoon unblocked	0.66				0.66	0.66
vC, conflicting volume	919				1995	919
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	624				2246	624
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	40				100	100
cM capacity (veh/h)	549				13	324

Direction, Lane #	EB 1	WB 1	WB 2
Volume Total	749	919	115
Volume Left	327	0	0
Volume Right	0	0	115
cSH	549	1700	1700
Volume to Capacity	0.60	0.54	0.07
Queue Length 95th (ft)	97	0	0
Control Delay (s)	18.3	0.0	0.0
Lane LOS	C		
Approach Delay (s)	18.3	0.0	
Approach LOS			

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	345	24	28	719	27	326	37	49	9	35	30
Future Volume (veh/h)	39	345	24	28	719	27	326	37	49	9	35	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1439	1439	1439	1439	1439	1900	1439	1439	1439	1439	1439	1439
Adj Flow Rate, veh/h	48	426	30	35	888	33	402	46	60	11	43	37
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	32	32	32	32	32	32	32	32	32	32	32	32
Cap, veh/h	56	621	528	46	585	22	325	412	351	19	91	77
Arrive On Green	0.04	0.43	0.43	0.03	0.42	0.42	0.24	0.29	0.29	0.01	0.06	0.06
Sat Flow, veh/h	1371	1439	1223	1371	1379	51	1371	1439	1223	1371	1439	1223
Grp Volume(v), veh/h	48	426	30	35	0	921	402	46	60	11	43	37
Grp Sat Flow(s),veh/h/ln	1371	1439	1223	1371	0	1430	1371	1439	1223	1371	1439	1223
Q Serve(g_s), s	2.8	19.0	1.1	2.0	0.0	33.7	18.8	1.9	2.9	0.6	2.3	2.3
Cycle Q Clear(g_c), s	2.8	19.0	1.1	2.0	0.0	33.7	18.8	1.9	2.9	0.6	2.3	2.3
Prop In Lane	1.00		1.00	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	56	621	528	46	0	607	325	412	351	19	91	77
V/C Ratio(X)	0.85	0.69	0.06	0.75	0.00	1.52	1.24	0.11	0.17	0.59	0.47	0.48
Avail Cap(c_a), veh/h	152	621	528	152	0	607	325	785	667	183	636	541
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	18.2	13.1	38.0	0.0	22.8	30.3	20.9	21.2	38.9	35.9	35.9
Incr Delay (d2), s/veh	27.9	3.1	0.0	21.5	0.0	241.0	130.9	0.1	0.2	26.5	3.8	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	8.0	0.4	1.0	0.0	53.8	18.8	0.8	1.0	0.4	1.0	0.9
LnGrp Delay(d),s/veh	65.7	21.3	13.2	59.5	0.0	263.8	161.1	21.0	21.5	65.4	39.7	40.4
LnGrp LOS	E	C	B	E		F	F	C	C	E	D	D
Approach Vol, veh/h		504			956			508			91	
Approach Delay, s/veh		25.1			256.3			132.0			43.1	
Approach LOS		C			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.3	27.6	6.9	39.6	23.0	9.9	7.5	39.0
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 11	43.3	* 8.8	33.7	* 19	35.1	* 8.8	33.7
Max Q Clear Time (g_c+I1), s	2.6	4.9	4.0	21.0	20.8	4.3	4.8	35.7
Green Ext Time (p_c), s	0.0	0.8	0.0	7.2	0.0	0.8	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	159.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	131	73	66	236	40	111	236	42	63	310	205
Future Volume (veh/h)	81	131	73	66	236	40	111	236	42	63	310	205
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	96	156	87	79	281	48	132	281	50	75	369	244
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	180	255	122	148	396	62	166	907	159	93	534	348
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.10	0.32	0.32	0.06	0.28	0.28
Sat Flow, veh/h	280	721	346	206	1120	177	1675	2843	499	1675	1942	1265
Grp Volume(v), veh/h	339	0	0	408	0	0	132	164	167	75	317	296
Grp Sat Flow(s),veh/h/ln	1346	0	0	1502	0	0	1675	1671	1671	1675	1671	1536
Q Serve(g_s), s	0.0	0.0	0.0	1.4	0.0	0.0	4.4	4.2	4.3	2.5	9.6	9.9
Cycle Q Clear(g_c), s	12.0	0.0	0.0	13.3	0.0	0.0	4.4	4.2	4.3	2.5	9.6	9.9
Prop In Lane	0.28		0.26	0.19		0.12	1.00		0.30	1.00		0.82
Lane Grp Cap(c), veh/h	557	0	0	606	0	0	166	533	533	93	460	423
V/C Ratio(X)	0.61	0.00	0.00	0.67	0.00	0.00	0.79	0.31	0.31	0.81	0.69	0.70
Avail Cap(c_a), veh/h	852	0	0	933	0	0	259	763	763	171	667	613
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	0.0	16.1	0.0	0.0	25.1	14.6	14.7	26.6	18.5	18.5
Incr Delay (d2), s/veh	1.1	0.0	0.0	1.3	0.0	0.0	8.8	0.3	0.3	15.1	1.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	5.8	0.0	0.0	2.4	2.0	2.0	1.6	4.6	4.4
LnGrp Delay(d),s/veh	16.6	0.0	0.0	17.4	0.0	0.0	33.9	15.0	15.0	41.7	20.3	20.7
LnGrp LOS	B			B			C	B	B	D	C	C
Approach Vol, veh/h		339			408			463			688	
Approach Delay, s/veh		16.6			17.4			20.4			22.8	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	24.2		25.4	9.8	21.7		25.4
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 5.8	* 26		33.0	* 8.8	22.7		33.0
Max Q Clear Time (g_c+I1), s	4.5	6.3		14.0	6.4	11.9		15.3
Green Ext Time (p_c), s	0.0	5.0		4.5	0.1	3.8		4.3

Intersection Summary	
HCM 2010 Ctrl Delay	19.9
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	5.7

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	135	0	0	165	39	247
Future Vol, veh/h	135	0	0	165	39	247
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	85	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	33	0	0	33	33	33
Mvmt Flow	152	0	0	185	44	278

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	337	152
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	185	-
Critical Hdwy	-	-	-	-	6.73	6.53
Critical Hdwy Stg 1	-	-	-	-	5.73	-
Critical Hdwy Stg 2	-	-	-	-	5.73	-
Follow-up Hdwy	-	-	-	-	3.797	3.597
Pot Cap-1 Maneuver	-	0	0	-	600	819
Stage 1	-	0	0	-	806	-
Stage 2	-	0	0	-	777	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	600	819
Mov Cap-2 Maneuver	-	-	-	-	600	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	777	-

Approach	NB	SB	NW
HCM Control Delay, s	0	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NWLn1	NWLn2	SBT
Capacity (veh/h)	-	600	819	-
HCM Lane V/C Ratio	-	0.073	0.339	-
HCM Control Delay (s)	-	11.5	11.6	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.2	1.5	-

Intersection	
Int Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	109	201	0	0	0	20	140	28	40	151	13
Future Vol, veh/h	5	109	201	0	0	0	20	140	28	40	151	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	Free	-	-	Free
Storage Length	-	-	100	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	50	50	50	50	50	50	50	50	50
Mvmt Flow	5	118	218	0	0	0	22	152	30	43	164	14

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	447	447	164				164	0	-	152	0	0
Stage 1	251	251	-				-	-	-	-	-	-
Stage 2	196	196	-				-	-	-	-	-	-
Critical Hdwy	6.9	7	6.7				4.6	-	-	4.6	-	-
Critical Hdwy Stg 1	5.9	6	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.9	6	-				-	-	-	-	-	-
Follow-up Hdwy	3.95	4.45	3.75				2.65	-	-	2.65	-	-
Pot Cap-1 Maneuver	490	442	770				1169	-	0	1182	-	0
Stage 1	691	619	-				-	-	0	-	-	0
Stage 2	735	657	-				-	-	0	-	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	461	0	770				1169	-	-	1182	-	-
Mov Cap-2 Maneuver	461	0	-				-	-	-	-	-	-
Stage 1	663	0	-				-	-	-	-	-	-
Stage 2	720	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13	1	1.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	1169	-	461	770	1182	-
HCM Lane V/C Ratio	0.019	-	0.269	0.284	0.037	-
HCM Control Delay (s)	8.1	0	15.7	11.5	8.2	0
HCM Lane LOS	A	A	C	B	A	A
HCM 95th %tile Q(veh)	0.1	-	1.1	1.2	0.1	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	158	560	45	42	248	295	19	144	383	778	215	111
Future Volume (vph)	158	560	45	42	248	295	19	144	383	778	215	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	1.00	1.00		1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	1638	1392		1556	3112	1392	1556	1638	1392	1556	1638
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1556	1638	1392		1556	3112	1392	1556	1638	1392	1556	1638
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	178	629	51	47	279	331	21	162	430	874	242	125
RTOR Reduction (vph)	0	0	35	0	0	0	14	0	0	95	0	0
Lane Group Flow (vph)	178	629	16	0	326	331	7	162	430	779	242	125
Heavy Vehicles (%)	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	9.8	35.7	35.7		9.8	35.7	35.7	14.2	42.0	42.0	7.8	35.6
Effective Green, g (s)	9.8	35.7	35.7		9.8	35.7	35.7	14.2	42.0	42.0	7.8	35.6
Actuated g/C Ratio	0.09	0.31	0.31		0.09	0.31	0.31	0.12	0.37	0.37	0.07	0.31
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	132	508	432		132	966	432	192	598	508	105	507
v/s Ratio Prot	0.11	c0.38			c0.21	0.11		0.10	0.26		c0.16	0.08
v/s Ratio Perm			0.01				0.00			c0.56		
v/c Ratio	1.35	1.24	0.04		2.47	0.34	0.02	0.84	0.72	1.53	2.30	0.25
Uniform Delay, d1	52.6	39.6	27.7		52.6	30.6	27.5	49.3	31.4	36.5	53.6	29.7
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	198.5	123.2	0.0		683.5	0.2	0.0	27.2	4.1	250.2	616.0	0.3
Delay (s)	251.1	162.9	27.7		736.1	30.8	27.5	76.5	35.6	286.7	669.6	29.9
Level of Service	F	F	C		F	C	C	E	D	F	F	C
Approach Delay (s)		173.1				369.8			189.8			358.9
Approach LOS		F				F			F			F

Intersection Summary			
HCM 2000 Control Delay	243.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.58		
Actuated Cycle Length (s)	115.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	122.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	92
Future Volume (vph)	92
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1392
Flt Permitted	1.00
Satd. Flow (perm)	1392
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	103
RTOR Reduction (vph)	71
Lane Group Flow (vph)	32
Heavy Vehicles (%)	16%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	35.6
Effective Green, g (s)	35.6
Actuated g/C Ratio	0.31
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	430
v/s Ratio Prot	
v/s Ratio Perm	0.02
v/c Ratio	0.07
Uniform Delay, d1	28.1
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	28.1
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1595	537	228	0	67
Future Vol, veh/h	0	1595	537	228	0	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	17	3	17	3
Mvmt Flow	0	1734	584	248	0	73

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	416
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.945
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3285
Pot Cap-1 Maneuver	0	-	-	-	0	584
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	584
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	584
HCM Lane V/C Ratio	-	-	-	0.125
HCM Control Delay (s)	-	-	-	12
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.4

Intersection	
Int Delay, s/veh	145.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1390	238	4	404	0	12	0	28	101	86	366
Future Vol, veh/h	0	1390	238	4	404	0	12	0	28	101	86	366
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	None	-	-	Yield
Storage Length	-	-	60	-	-	-	0	-	45	-	-	55
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	22	22	22	22	0	22	0	22	22	22	22
Mvmt Flow	0	1479	253	4	430	0	13	0	30	107	91	389

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	-	1479	0	0	1963	-	1479	1917	1917	430
Stage 1	-	-	-	-	-	-	1479	-	-	438	438	-
Stage 2	-	-	-	-	-	-	484	-	-	1479	1479	-
Critical Hdwy	-	-	-	4.32	-	-	7.32	-	6.42	7.32	6.72	6.42
Critical Hdwy Stg 1	-	-	-	-	-	-	6.32	-	-	6.32	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.32	-	-	6.32	5.72	-
Follow-up Hdwy	-	-	-	2.398	-	-	3.698	-	3.498	3.698	4.198	3.498
Pot Cap-1 Maneuver	0	-	0	400	-	0	42	0	139	~ 45	~ 60	585
Stage 1	0	-	0	-	-	0	141	0	-	560	546	-
Stage 2	0	-	0	-	-	0	528	0	-	141	172	-
Platoon blocked, %		-			-							
Mov Cap-1 Maneuver	-	-	-	400	-	-	-	-	139	~ 35	~ 59	585
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	~ 35	~ 59	-
Stage 1	-	-	-	-	-	-	141	-	-	560	539	-
Stage 2	-	-	-	-	-	-	145	-	-	111	172	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1		$ 630.7
HCM LOS			-	F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	139	-	400	-	43	585
HCM Lane V/C Ratio	-	0.214	-	0.011	-	4.626	0.666
HCM Control Delay (s)	-	37.8	-	14.1	0	$ 1821.2	22.5
HCM Lane LOS	-	E	-	B	A	F	C
HCM 95th %tile Q(veh)	-	0.8	-	0	-	22.8	5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	762	782	412	403	0	0
Future Volume (Veh/h)	762	782	412	403	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	837	859	453	443	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			947			
pX, platoon unblocked						
vC, conflicting volume	453				2986	453
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	453				2986	453
tC, single (s)	4.2				6.5	6.4
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	20				100	100
cM capacity (veh/h)	1042				3	581

Direction, Lane #	EB 1	WB 1	WB 2
Volume Total	1696	453	443
Volume Left	837	0	0
Volume Right	0	0	443
cSH	1042	1700	1700
Volume to Capacity	0.80	0.27	0.26
Queue Length 95th (ft)	226	0	0
Control Delay (s)	20.8	0.0	0.0
Lane LOS	C		
Approach Delay (s)	20.8	0.0	
Approach LOS			

Intersection Summary			
Average Delay	13.6		
Intersection Capacity Utilization	114.9%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	736	5	39	480	10	347	66	127	13	17	34
Future Volume (veh/h)	36	736	5	39	480	10	347	66	127	13	17	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1557	1557	1557	1557	1557	1900	1557	1557	1557	1557	1557	1557
Adj Flow Rate, veh/h	40	809	5	43	527	11	381	73	140	14	19	37
Adj No. of Lanes	1	1	1	1	1	0	1	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	22	22	22	22	22	22	22	22	22	22	22	22
Cap, veh/h	53	784	666	55	768	16	271	355	302	24	97	82
Arrive On Green	0.04	0.50	0.50	0.04	0.50	0.50	0.18	0.23	0.23	0.02	0.06	0.06
Sat Flow, veh/h	1483	1557	1324	1483	1520	32	1483	1557	1324	1483	1557	1324
Grp Volume(v), veh/h	40	809	5	43	0	538	381	73	140	14	19	37
Grp Sat Flow(s),veh/h/ln	1483	1557	1324	1483	0	1552	1483	1557	1324	1483	1557	1324
Q Serve(g_s), s	2.3	43.6	0.2	2.5	0.0	22.7	15.8	3.3	7.9	0.8	1.0	2.3
Cycle Q Clear(g_c), s	2.3	43.6	0.2	2.5	0.0	22.7	15.8	3.3	7.9	0.8	1.0	2.3
Prop In Lane	1.00		1.00	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	53	784	666	55	0	784	271	355	302	24	97	82
V/C Ratio(X)	0.76	1.03	0.01	0.78	0.00	0.69	1.41	0.21	0.46	0.57	0.20	0.45
Avail Cap(c_a), veh/h	89	784	666	86	0	784	271	770	654	86	575	489
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	21.5	10.7	41.3	0.0	16.2	35.4	27.1	28.9	42.3	38.6	39.2
Incr Delay (d2), s/veh	19.3	40.6	0.0	20.9	0.0	2.5	204.2	0.3	1.1	19.3	1.0	3.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	27.3	0.1	1.3	0.0	10.3	21.7	1.4	3.0	0.5	0.5	0.9
LnGrp Delay(d),s/veh	60.7	62.1	10.7	62.2	0.0	18.8	239.6	27.4	30.0	61.6	39.5	43.0
LnGrp LOS	E	F	B	E		B	F	C	C	E	D	D
Approach Vol, veh/h		854			581			594			70	
Approach Delay, s/veh		61.7			22.0			164.1			45.8	
Approach LOS		E			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.6	24.6	7.4	48.9	20.0	10.3	7.3	49.0
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 5	42.8	* 5	43.6	* 16	32.0	* 5.2	43.4
Max Q Clear Time (g_c+I1), s	2.8	9.9	4.5	45.6	17.8	4.3	4.3	24.7
Green Ext Time (p_c), s	0.0	1.1	0.0	0.0	0.0	1.0	0.0	8.6

Intersection Summary	
HCM 2010 Ctrl Delay	79.2
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	139	239	130	52	146	76	81	514	51	29	333	98
Future Volume (veh/h)	139	239	130	52	146	76	81	514	51	29	333	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	145	249	135	54	152	79	84	535	53	30	347	102
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	221	322	159	150	371	171	106	837	83	42	600	174
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.06	0.27	0.27	0.03	0.23	0.23
Sat Flow, veh/h	326	737	364	175	848	392	1675	3073	304	1675	2558	741
Grp Volume(v), veh/h	529	0	0	285	0	0	84	290	298	30	225	224
Grp Sat Flow(s),veh/h/ln	1427	0	0	1416	0	0	1675	1671	1706	1675	1671	1628
Q Serve(g_s), s	11.6	0.0	0.0	0.0	0.0	0.0	2.9	8.9	9.0	1.0	6.9	7.1
Cycle Q Clear(g_c), s	18.8	0.0	0.0	7.3	0.0	0.0	2.9	8.9	9.0	1.0	6.9	7.1
Prop In Lane	0.27		0.26	0.19		0.28	1.00		0.18	1.00		0.46
Lane Grp Cap(c), veh/h	702	0	0	692	0	0	106	455	465	42	392	382
V/C Ratio(X)	0.75	0.00	0.00	0.41	0.00	0.00	0.80	0.64	0.64	0.71	0.57	0.59
Avail Cap(c_a), veh/h	916	0	0	907	0	0	281	753	769	109	573	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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	0.0	0.0	11.3	0.0	0.0	27.0	18.7	18.7	28.2	19.8	19.8
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.4	0.0	0.0	12.6	1.5	1.5	20.0	1.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	0.0	0.0	3.2	0.0	0.0	1.7	4.3	4.4	0.7	3.3	3.3
LnGrp Delay(d),s/veh	16.8	0.0	0.0	11.7	0.0	0.0	39.6	20.2	20.2	48.2	21.1	21.3
LnGrp LOS	B			B			D	C	C	D	C	C
Approach Vol, veh/h		529			285			672			479	
Approach Delay, s/veh		16.8			11.7			22.6			22.9	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	21.9		30.8	7.9	19.7		30.8
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 3.8	* 26		34.7	* 9.8	20.0		34.7
Max Q Clear Time (g_c+I1), s	3.0	11.0		20.8	4.9	9.1		9.3
Green Ext Time (p_c), s	0.0	4.9		4.4	0.1	4.1		5.6

Intersection Summary	
HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B

Notes

Intersection	
Int Delay, s/veh	3.4

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	349	0	0	82	13	147
Future Vol, veh/h	349	0	0	82	13	147
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Yield
Storage Length	-	-	-	-	85	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	24	0	0	24	24	24
Mvmt Flow	375	0	0	88	14	158

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	463	375
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	88	-
Critical Hdwy	-	-	-	-	6.64	6.44
Critical Hdwy Stg 1	-	-	-	-	5.64	-
Critical Hdwy Stg 2	-	-	-	-	5.64	-
Follow-up Hdwy	-	-	-	-	3.716	3.516
Pot Cap-1 Maneuver	-	0	0	-	519	625
Stage 1	-	0	0	-	649	-
Stage 2	-	0	0	-	883	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	519	625
Mov Cap-2 Maneuver	-	-	-	-	519	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	883	-

Approach	NB	SB	NW
HCM Control Delay, s	0	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NWLn1	NWLn2	SBT
Capacity (veh/h)	-	519	625	-
HCM Lane V/C Ratio	-	0.027	0.253	-
HCM Control Delay (s)	-	12.1	12.7	-
HCM Lane LOS	-	B	B	-
HCM 95th %tile Q(veh)	-	0.1	1	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	217	97	0	0	0	12	330	33	34	59	3
Future Vol, veh/h	5	217	97	0	0	0	12	330	33	34	59	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	None	-	-	Free	-	-	Free
Storage Length	-	-	100	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	16979	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	22	22	22	0	0	0	22	22	22	22	22	22
Mvmt Flow	5	231	103	0	0	0	13	351	35	36	63	3

Major/Minor	Minor2						Major1			Major2		
Conflicting Flow All	512	512	63				63	0	-	351	0	0
Stage 1	135	135	-				-	-	-	-	-	-
Stage 2	377	377	-				-	-	-	-	-	-
Critical Hdwy	6.62	6.72	6.42				4.32	-	-	4.32	-	-
Critical Hdwy Stg 1	5.62	5.72	-				-	-	-	-	-	-
Critical Hdwy Stg 2	5.62	5.72	-				-	-	-	-	-	-
Follow-up Hdwy	3.698	4.198	3.498				2.398	-	-	2.398	-	-
Pot Cap-1 Maneuver	488	438	948				1421	-	0	1105	-	0
Stage 1	844	748	-				-	-	0	-	-	0
Stage 2	652	582	-				-	-	0	-	-	0
Platoon blocked, %								-			-	
Mov Cap-1 Maneuver	466	0	948				1421	-	-	1105	-	-
Mov Cap-2 Maneuver	466	0	-				-	-	-	-	-	-
Stage 1	815	0	-				-	-	-	-	-	-
Stage 2	645	0	-				-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17	0.3	3.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBL	SBT
Capacity (veh/h)	1421	-	466	948	1105	-
HCM Lane V/C Ratio	0.009	-	0.507	0.109	0.033	-
HCM Control Delay (s)	7.6	0	20.4	9.3	8.4	0
HCM Lane LOS	A	A	C	A	A	A
HCM 95th %tile Q(veh)	0	-	2.8	0.4	0.1	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	67	193	134	49	735	609	49	31	93	194	215	339
Future Volume (vph)	67	193	134	49	735	609	49	31	93	194	215	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	0.95	1.00		0.97	0.95	1.00	1.00	1.00	0.88	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1543	3085	1380		2993	3085	1380	1543	1624	2429	1543	1624
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1543	3085	1380		2993	3085	1380	1543	1624	2429	1543	1624
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	214	149	54	817	677	54	34	103	216	239	377
RTOR Reduction (vph)	0	0	125	0	0	0	34	0	0	181	0	0
Lane Group Flow (vph)	74	214	24	0	871	677	20	34	103	35	239	377
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	7.8	14.2	14.2		26.1	32.5	32.5	2.5	14.4	14.4	14.8	26.7
Effective Green, g (s)	7.8	14.2	14.2		26.1	32.5	32.5	2.5	14.4	14.4	14.8	26.7
Actuated g/C Ratio	0.09	0.16	0.16		0.29	0.36	0.36	0.03	0.16	0.16	0.17	0.30
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	134	491	219		875	1124	502	43	262	392	256	486
v/s Ratio Prot	c0.05	0.07			c0.29	c0.22		c0.02	0.06		c0.15	c0.23
v/s Ratio Perm			0.02				0.01			0.01		
v/c Ratio	0.55	0.44	0.11		1.00	0.60	0.04	0.79	0.39	0.09	0.93	0.78
Uniform Delay, d1	39.0	33.9	32.1		31.5	23.1	18.3	43.1	33.5	31.8	36.7	28.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	0.6	0.2		29.1	0.9	0.0	63.1	1.0	0.1	38.4	7.6
Delay (s)	43.9	34.5	32.3		60.6	24.0	18.3	106.2	34.5	31.9	75.1	36.1
Level of Service	D	C	C		E	C	B	F	C	C	E	D
Approach Delay (s)		35.3				43.7			39.8			44.9
Approach LOS		D				D			D			D

Intersection Summary			
HCM 2000 Control Delay	42.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	89.2	Sum of lost time (s)	19.7
Intersection Capacity Utilization	65.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	166
Future Volume (vph)	166
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1380
Flt Permitted	1.00
Satd. Flow (perm)	1380
Peak-hour factor, PHF	0.90
Adj. Flow (vph)	184
RTOR Reduction (vph)	102
Lane Group Flow (vph)	82
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	26.7
Effective Green, g (s)	26.7
Actuated g/C Ratio	0.30
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	413
v/s Ratio Prot	
v/s Ratio Perm	0.06
v/c Ratio	0.20
Uniform Delay, d1	23.3
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	23.5
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	549	108	4	842	0	13	0	17	153	220	783
Future Volume (veh/h)	0	549	108	4	842	0	13	0	17	153	220	783
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	0	1496	1496	1496	1496	0	1496	0	1496	1496	1496	1496
Adj Flow Rate, veh/h	0	610	120	4	936	0	14	0	19	170	244	870
Adj No. of Lanes	0	2	1	1	2	0	1	0	1	1	1	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	27	27	27	27	0	27	0	27	27	27	27
Cap, veh/h	0	786	352	95	1178	0	24	0	0	619	541	809
Arrive On Green	0.00	0.28	0.28	0.07	0.41	0.00	0.02	0.00	0.00	0.43	0.36	0.36
Sat Flow, veh/h	0	2917	1272	1425	2917	0	1425	14		1425	1496	2238
Grp Volume(v), veh/h	0	610	120	4	936	0	14	56.8		170	244	870
Grp Sat Flow(s),veh/h/ln	0	1421	1272	1425	1421	0	1425	E		1425	1496	1119
Q Serve(g_s), s	0.0	14.8	4.5	0.2	21.5	0.0	0.7			5.7	9.3	27.0
Cycle Q Clear(g_c), s	0.0	14.8	4.5	0.2	21.5	0.0	0.7			5.7	9.3	27.0
Prop In Lane	0.00		1.00	1.00		0.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	786	352	95	1178	0	24			619	541	809
V/C Ratio(X)	0.00	0.78	0.34	0.04	0.79	0.00	0.58			0.27	0.45	1.08
Avail Cap(c_a), veh/h	0	1267	567	95	1617	0	95			619	541	809
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	24.9	13.9	32.6	19.1	0.0	36.5			13.6	18.2	23.9
Incr Delay (d2), s/veh	0.0	1.7	0.6	0.2	2.0	0.0	20.3			0.2	0.6	54.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	1.8	0.1	8.6	0.0	0.4			2.3	3.9	14.3
LnGrp Delay(d),s/veh	0.0	26.6	14.4	32.8	21.1	0.0	56.8			13.8	18.8	77.9
LnGrp LOS		C	B	C	C		E			B	B	F
Approach Vol, veh/h		730			940						1284	
Approach Delay, s/veh		24.6			21.1						58.2	
Approach LOS		C			C						E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1		3	4	5	6		8
Phs Duration (G+Y+Rc), s	38.5		10.3	26.0	5.5	33.0		36.3
Change Period (Y+Rc), s	6.0		5.3	* 5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	19.9		5.0	* 33	* 5	27.0		42.5
Max Q Clear Time (g_c+I1), s	7.7		2.2	16.8	2.7	29.0		23.5
Green Ext Time (p_c), s	4.6		1.6	3.9	0.0	0.0		6.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	307	397	864	108	0	0
Future Volume (veh/h)	307	397	864	108	0	0
Number	7	4	8	18		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1439	1439	1439	1439		
Adj Flow Rate, veh/h	327	422	919	0		
Adj No. of Lanes	2	2	2	1		
Peak Hour Factor	0.94	0.94	0.94	0.94		
Percent Heavy Veh, %	32	32	32	32		
Cap, veh/h	485	2268	1399	626		
Arrive On Green	0.18	0.83	0.51	0.00		
Sat Flow, veh/h	2659	2807	2807	1223		
Grp Volume(v), veh/h	327	422	919	0		
Grp Sat Flow(s),veh/h/ln	1330	1367	1367	1223		
Q Serve(g_s), s	3.6	1.0	7.7	0.0		
Cycle Q Clear(g_c), s	3.6	1.0	7.7	0.0		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	485	2268	1399	626		
V/C Ratio(X)	0.67	0.19	0.66	0.00		
Avail Cap(c_a), veh/h	839	3057	1823	816		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	0.00		
Uniform Delay (d), s/veh	11.8	0.5	5.6	0.0		
Incr Delay (d2), s/veh	1.6	0.0	0.5	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.4	0.4	2.9	0.0		
LnGrp Delay(d),s/veh	13.5	0.6	6.1	0.0		
LnGrp LOS	B	A	A			
Approach Vol, veh/h		749	919			
Approach Delay, s/veh		6.2	6.1			
Approach LOS		A	A			

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4			7	8
Phs Duration (G+Y+Rc), s				31.0			9.9	21.2
Change Period (Y+Rc), s				5.3			* 4.2	5.3
Max Green Setting (Gmax), s				34.7			* 9.8	20.7
Max Q Clear Time (g_c+I1), s				3.0			5.6	9.7
Green Ext Time (p_c), s				10.8			0.5	6.2

Intersection Summary		
HCM 2010 Ctrl Delay		6.2
HCM 2010 LOS		A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	39	345	24	28	719	27	326	37	49	9	35	30
Future Volume (veh/h)	39	345	24	28	719	27	326	37	49	9	35	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1439	1439	1900	1439	1439	1900	1439	1439	1439	1439	1439	1439
Adj Flow Rate, veh/h	48	426	30	35	888	33	402	46	60	11	43	37
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Percent Heavy Veh, %	32	32	32	32	32	32	32	32	32	32	32	32
Cap, veh/h	62	578	41	278	1071	40	496	358	305	19	110	94
Arrive On Green	0.05	0.22	0.22	0.20	0.40	0.40	0.19	0.25	0.25	0.01	0.08	0.08
Sat Flow, veh/h	1371	2593	182	1371	2689	100	2659	1439	1223	1371	1439	1223
Grp Volume(v), veh/h	48	224	232	35	452	469	402	46	60	11	43	37
Grp Sat Flow(s),veh/h/ln	1371	1367	1407	1371	1367	1422	1330	1439	1223	1371	1439	1223
Q Serve(g_s), s	2.2	9.6	9.7	1.3	18.8	18.8	9.2	1.6	1.3	0.5	1.8	1.8
Cycle Q Clear(g_c), s	2.2	9.6	9.7	1.3	18.8	18.8	9.2	1.6	1.3	0.5	1.8	1.8
Prop In Lane	1.00		0.13	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	62	305	314	278	545	566	496	358	305	19	110	94
V/C Ratio(X)	0.78	0.73	0.74	0.13	0.83	0.83	0.81	0.13	0.20	0.58	0.39	0.40
Avail Cap(c_a), veh/h	110	700	720	278	728	757	655	968	823	108	727	618
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	22.9	22.9	20.6	17.1	17.1	24.7	18.4	5.0	31.0	27.8	27.8
Incr Delay (d2), s/veh	18.6	3.4	3.4	0.2	6.0	5.8	5.8	0.2	0.3	24.7	2.2	2.7
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	1.1	3.9	4.0	0.5	7.9	8.2	3.7	0.6	0.8	0.3	0.8	0.7
LnGrp Delay(d),s/veh	48.5	26.3	26.3	20.8	23.1	22.9	30.4	18.6	5.3	55.8	30.1	30.5
LnGrp LOS	D	C	C	C	C	C	C	B	A	E	C	C
Approach Vol, veh/h		504			956			508			91	
Approach Delay, s/veh		28.4			22.9			26.4			33.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	20.7	18.2	19.4	16.0	9.7	7.1	30.5
Change Period (Y+Rc), s	* 4.2	4.9	5.3	* 5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 5	42.6	6.4	* 32	* 16	32.0	* 5.1	33.7
Max Q Clear Time (g_c+I1), s	2.5	3.6	3.3	11.7	11.2	3.8	4.2	20.8
Green Ext Time (p_c), s	0.0	0.8	1.6	2.4	0.6	0.8	0.0	4.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	158	560	45	42	248	295	19	144	383	778	215	111
Future Volume (vph)	158	560	45	42	248	295	19	144	383	778	215	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	0.95	1.00		0.97	0.95	1.00	1.00	1.00	0.88	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	3112	1392		3019	3112	1392	1556	1638	2450	1556	1638
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1556	3112	1392		3019	3112	1392	1556	1638	2450	1556	1638
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	178	629	51	47	279	331	21	162	430	874	242	125
RTOR Reduction (vph)	0	0	37	0	0	0	15	0	0	242	0	0
Lane Group Flow (vph)	178	629	14	0	326	331	6	162	430	633	242	125
Heavy Vehicles (%)	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%	16%
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	14.9	30.8	30.8		15.7	31.6	31.6	32.5	35.5	35.5	14.3	17.3
Effective Green, g (s)	14.9	30.8	30.8		15.7	31.6	31.6	32.5	35.5	35.5	14.3	17.3
Actuated g/C Ratio	0.13	0.27	0.27		0.14	0.27	0.27	0.28	0.31	0.31	0.12	0.15
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	199	826	369		408	847	379	435	501	749	191	244
v/s Ratio Prot	c0.11	c0.20			c0.11	0.11		0.10	c0.26		c0.16	0.08
v/s Ratio Perm			0.01				0.00			0.26		
v/c Ratio	0.89	0.76	0.04		0.80	0.39	0.02	0.37	0.86	0.84	1.27	0.51
Uniform Delay, d1	49.8	39.2	31.6		48.6	34.4	30.8	33.6	37.9	37.7	50.9	45.5
Progression Factor	1.00	1.00	1.00		0.99	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	36.0	6.6	0.2		10.1	1.3	0.1	0.5	13.6	8.6	154.9	1.8
Delay (s)	85.7	45.8	31.8		58.0	35.8	30.9	34.1	51.5	46.3	205.7	47.3
Level of Service	F	D	C		E	D	C	C	D	D	F	D
Approach Delay (s)		53.2				46.4			46.5			127.8
Approach LOS		D				D			D			F

Intersection Summary			
HCM 2000 Control Delay	59.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	116.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	92
Future Volume (vph)	92
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1392
Flt Permitted	1.00
Satd. Flow (perm)	1392
Peak-hour factor, PHF	0.89
Adj. Flow (vph)	103
RTOR Reduction (vph)	88
Lane Group Flow (vph)	15
Heavy Vehicles (%)	16%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	17.3
Effective Green, g (s)	17.3
Actuated g/C Ratio	0.15
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	207
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.07
Uniform Delay, d1	42.5
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	42.6
Level of Service	D
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1390	238	4	404	0	12	0	28	101	86	366
Future Volume (veh/h)	0	1390	238	4	404	0	12	0	28	101	86	366
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	0	1557	1557	1557	1557	0	1557	0	1557	1557	1557	1557
Adj Flow Rate, veh/h	0	1479	253	4	430	0	13	0	30	107	91	389
Adj No. of Lanes	0	2	1	1	2	0	1	0	1	1	1	2
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, %	0	22	22	22	22	0	22	0	22	22	22	22
Cap, veh/h	0	1852	828	107	2172	0	21	0	0	287	223	333
Arrive On Green	0.00	0.83	0.83	0.14	1.00	0.00	0.01	0.00	0.00	0.19	0.14	0.14
Sat Flow, veh/h	0	3037	1324	1483	3037	0	1483	13		1483	1557	2330
Grp Volume(v), veh/h	0	1479	253	4	430	0	13	81.7		107	91	389
Grp Sat Flow(s),veh/h/ln	0	1480	1324	1483	1480	0	1483	F		1483	1557	1165
Q Serve(g_s), s	0.0	29.0	5.0	0.3	0.0	0.0	1.0			7.3	6.2	16.6
Cycle Q Clear(g_c), s	0.0	29.0	5.0	0.3	0.0	0.0	1.0			7.3	6.2	16.6
Prop In Lane	0.00		1.00	1.00		0.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	1852	828	107	2172	0	21			287	223	333
V/C Ratio(X)	0.00	0.80	0.31	0.04	0.20	0.00	0.61			0.37	0.41	1.17
Avail Cap(c_a), veh/h	0	1852	828	107	2172	0	64			287	223	333
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.97	0.97	0.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	6.1	4.1	46.2	0.0	0.0	56.8			40.6	45.2	49.7
Incr Delay (d2), s/veh	0.0	3.7	1.0	0.1	0.2	0.0	24.9			0.8	1.2	102.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.2	2.0	0.1	0.1	0.0	0.6			3.0	2.7	10.1
LnGrp Delay(d),s/veh	0.0	9.8	5.0	46.4	0.2	0.0	81.7			41.4	46.4	152.3
LnGrp LOS		A	A	D	A		F			D	D	F
Approach Vol, veh/h		1732			434						587	
Approach Delay, s/veh		9.1			0.6						115.7	
Approach LOS		A			A						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1		3	4	5	6		8
Phs Duration (G+Y+Rc), s	26.7		12.5	76.8	5.9	20.8		89.3
Change Period (Y+Rc), s	4.2		* 4.2	* 4.2	* 4.2	* 4.2		* 4.2
Max Green Setting (Gmax), s	14.8		* 5	* 73	* 5	* 17		* 82
Max Q Clear Time (g_c+I1), s	9.3		2.3	31.0	3.0	18.6		2.0
Green Ext Time (p_c), s	0.1		0.7	16.6	0.0	0.0		2.9

Intersection Summary	
HCM 2010 Ctrl Delay	30.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	WBT	WBR	SEL	SER
Lane Configurations						
Traffic Volume (veh/h)	762	782	412	403	0	0
Future Volume (veh/h)	762	782	412	403	0	0
Number	7	4	8	18		
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)	1.00			1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1652	1652	1652	1652		
Adj Flow Rate, veh/h	837	859	453	443		
Adj No. of Lanes	2	2	2	1		
Peak Hour Factor	0.91	0.91	0.91	0.91		
Percent Heavy Veh, %	15	15	15	15		
Cap, veh/h	922	2852	1677	750		
Arrive On Green	0.60	1.00	0.53	0.53		
Sat Flow, veh/h	3053	3222	3222	1404		
Grp Volume(v), veh/h	837	859	453	443		
Grp Sat Flow(s),veh/h/ln	1526	1570	1570	1404		
Q Serve(g_s), s	13.9	0.0	4.6	12.4		
Cycle Q Clear(g_c), s	13.9	0.0	4.6	12.4		
Prop In Lane	1.00			1.00		
Lane Grp Cap(c), veh/h	922	2852	1677	750		
V/C Ratio(X)	0.91	0.30	0.27	0.59		
Avail Cap(c_a), veh/h	1095	2852	1677	750		
HCM Platoon Ratio	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.62	0.62	1.00	1.00		
Uniform Delay (d), s/veh	10.8	0.0	7.4	9.2		
Incr Delay (d2), s/veh	6.5	0.2	0.4	3.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	6.4	0.1	2.0	5.5		
LnGrp Delay(d),s/veh	17.3	0.2	7.8	12.6		
LnGrp LOS	B	A	A	B		
Approach Vol, veh/h		1696	896			
Approach Delay, s/veh		8.6	10.1			
Approach LOS		A	B			

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4			7	8
Phs Duration (G+Y+Rc), s				58.0			21.7	36.3
Change Period (Y+Rc), s				5.3			* 4.2	5.3
Max Green Setting (Gmax), s				52.7			* 21	27.7
Max Q Clear Time (g_c+I1), s				2.0			15.9	14.4
Green Ext Time (p_c), s				14.6			1.6	8.0

Intersection Summary		
HCM 2010 Ctrl Delay		9.1
HCM 2010 LOS		A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	736	5	39	480	10	347	66	127	13	17	34
Future Volume (veh/h)	36	736	5	39	480	10	347	66	127	13	17	34
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1557	1557	1900	1557	1557	1900	1557	1557	1557	1557	1557	1557
Adj Flow Rate, veh/h	40	809	5	43	527	11	381	73	140	14	19	37
Adj No. of Lanes	1	2	0	1	2	0	2	1	1	1	1	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	22	22	22	22	22	22	22	22	22	22	22	22
Cap, veh/h	632	1844	11	51	624	13	433	277	235	23	67	57
Arrive On Green	0.43	0.61	0.61	0.03	0.21	0.21	0.15	0.18	0.18	0.02	0.04	0.04
Sat Flow, veh/h	1483	3015	19	1483	2964	62	2877	1557	1324	1483	1557	1324
Grp Volume(v), veh/h	40	397	417	43	263	275	381	73	140	14	19	37
Grp Sat Flow(s),veh/h/ln	1483	1480	1554	1483	1480	1546	1439	1557	1324	1483	1557	1324
Q Serve(g_s), s	1.8	16.5	16.5	3.3	19.8	19.8	15.0	4.7	11.3	1.1	1.4	1.5
Cycle Q Clear(g_c), s	1.8	16.5	16.5	3.3	19.8	19.8	15.0	4.7	11.3	1.1	1.4	1.5
Prop In Lane	1.00		0.01	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	632	905	951	51	312	326	433	277	235	23	67	57
V/C Ratio(X)	0.06	0.44	0.44	0.84	0.84	0.84	0.88	0.26	0.59	0.60	0.28	0.65
Avail Cap(c_a), veh/h	632	905	951	75	478	500	491	628	534	64	430	365
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	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.6	12.0	12.0	55.7	44.0	44.0	48.3	41.1	43.8	56.7	53.8	11.7
Incr Delay (d2), s/veh	0.0	1.5	1.5	36.0	21.6	20.9	15.4	0.5	2.4	22.6	2.3	11.7
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	0.8	7.1	7.5	1.9	10.0	10.4	6.9	2.1	4.3	0.6	0.6	0.7
LnGrp Delay(d),s/veh	19.7	13.5	13.4	91.7	65.5	64.9	63.7	41.6	46.2	79.3	56.0	23.4
LnGrp LOS	B	B	B	F	E	E	E	D	D	E	E	C
Approach Vol, veh/h		854			581			594			70	
Approach Delay, s/veh		13.8			67.2			56.9			43.5	
Approach LOS		B			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.0	25.5	8.2	76.2	21.6	9.9	54.7	29.7
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 5	46.8	* 5.9	39.7	* 20	32.0	8.1	* 38
Max Q Clear Time (g_c+I1), s	3.1	13.3	5.3	18.5	17.0	3.5	3.8	21.8
Green Ext Time (p_c), s	0.0	1.1	0.0	4.8	0.4	1.1	1.9	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	41.7
HCM 2010 LOS	D

Notes

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	UL	L	T	T	R	L	T	R
Maximum Queue (ft)	163	155	114	165	228	270	365	277	220	69	167	133
Average Queue (ft)	64	80	56	64	224	267	315	165	22	30	63	54
95th Queue (ft)	124	144	108	130	234	289	381	264	110	64	119	96
Link Distance (ft)		2618	2618				277	277			1956	
Upstream Blk Time (%)						18	40	0				
Queuing Penalty (veh)						0	290	3				
Storage Bay Dist (ft)	250			250	185	185			100	150		150
Storage Blk Time (%)					33	55	1	18			1	0
Queuing Penalty (veh)					102	167	9	9			2	0

Intersection: 1: Orange Avenue & North Avenue

Movement	NB	SB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (ft)	82	175	1059	245
Average Queue (ft)	29	125	336	78
95th Queue (ft)	60	212	773	207
Link Distance (ft)			3209	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150	100		130
Storage Blk Time (%)		25	29	
Queuing Penalty (veh)		124	111	

Intersection: 2: North Avenue & Driveway

Movement	WB	WB	SB
Directions Served	T	TR	R
Maximum Queue (ft)	468	439	142
Average Queue (ft)	388	145	118
95th Queue (ft)	572	429	167
Link Distance (ft)	439	439	127
Upstream Blk Time (%)	9	0	85
Queuing Penalty (veh)	75	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	R	L	T	R	R
Maximum Queue (ft)	310	254	114	8	501	365	106	65	191	1104	420	360
Average Queue (ft)	188	100	35	0	179	144	11	20	90	440	338	274
95th Queue (ft)	303	211	81	3	382	282	50	53	156	1067	485	441
Link Distance (ft)	439	439			703	703	2368			1041		
Upstream Blk Time (%)										6		
Queuing Penalty (veh)										0		
Storage Bay Dist (ft)			60	150				45	300		300	300
Storage Blk Time (%)		15	2		14		1	7		1	24	2
Queuing Penalty (veh)		17	7		1		0	1		8	89	9

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	EB	EB	EB	WB	WB	WB
Directions Served	L	L	T	T	T	T	R
Maximum Queue (ft)	160	199	23	42	179	201	83
Average Queue (ft)	69	106	1	1	86	81	7
95th Queue (ft)	123	174	8	14	152	158	40
Link Distance (ft)			703	703	377	377	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	250	250					85
Storage Blk Time (%)						4	0
Queuing Penalty (veh)						4	0

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	L	T	R	L	T
Maximum Queue (ft)	130	182	187	130	371	232	205	295	67	78	47	130
Average Queue (ft)	41	56	85	39	137	107	104	114	26	36	7	35
95th Queue (ft)	89	122	158	91	251	199	172	191	63	71	31	89
Link Distance (ft)		467	467						609			1306
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			150			180	180		180	155	
Storage Blk Time (%)		0		0	7		0	0				
Queuing Penalty (veh)		0		0	2		0	0				

Intersection: 5: Cedar Avenue & North Ave

Movement	SB
Directions Served	R
Maximum Queue (ft)	99
Average Queue (ft)	24
95th Queue (ft)	68
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	355
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	217	265	138	115	117	116	199	198
Average Queue (ft)	109	138	76	46	61	42	67	99
95th Queue (ft)	186	232	126	85	107	82	120	167
Link Distance (ft)		4573		5304	5304		5297	5297
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			245			150		
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

Movement	NW	NW
Directions Served	L	R
Maximum Queue (ft)	55	236
Average Queue (ft)	26	41
95th Queue (ft)	56	149
Link Distance (ft)		1717
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)		4
Queuing Penalty (veh)		2

Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

Movement	EB	EB	NB	SB
Directions Served	LT	R	LTR	LTR
Maximum Queue (ft)	101	172	104	107
Average Queue (ft)	55	66	17	20
95th Queue (ft)	92	141	72	69
Link Distance (ft)	2368		3449	1087
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)	0	3		
Queuing Penalty (veh)	1	4		

Intersection: 14: North Ave

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 1037

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	UL	L	T	T	R	L	T	R
Maximum Queue (ft)	366	518	491	87	218	225	224	176	50	249	766	400
Average Queue (ft)	174	219	199	26	100	121	84	87	6	120	272	214
95th Queue (ft)	304	355	324	58	179	193	157	150	24	252	529	344
Link Distance (ft)		2618	2618				277	277			1956	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			250	185	185			100	150		150
Storage Blk Time (%)	1	4	3		1	3	0	7		2	26	19
Queuing Penalty (veh)	2	6	1		2	5	1	1		24	244	100

Intersection: 1: Orange Avenue & North Avenue

Movement	NB	SB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (ft)	268	175	1900	245
Average Queue (ft)	149	172	908	111
95th Queue (ft)	256	185	1739	293
Link Distance (ft)			3209	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	150	100		130
Storage Blk Time (%)	5	84	16	
Queuing Penalty (veh)	28	170	50	

Intersection: 2: North Avenue & Driveway

Movement	SB
Directions Served	R
Maximum Queue (ft)	74
Average Queue (ft)	31
95th Queue (ft)	52
Link Distance (ft)	127
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB	SB
Directions Served	T	T	R	L	T	T	L	R	L	T	R	R
Maximum Queue (ft)	360	278	260	4	166	39	102	75	188	152	122	92
Average Queue (ft)	211	117	37	0	18	4	19	36	85	73	67	47
95th Queue (ft)	335	237	119	2	81	22	63	71	149	134	110	80
Link Distance (ft)	439	439			703	703	2368			1041		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			60	150				45	300		300	300
Storage Blk Time (%)		16	2		0		3	27				
Queuing Penalty (veh)		38	11		0		1	3				

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	EB	EB	WB	WB	WB
Directions Served	L	L	T	T	T	R
Maximum Queue (ft)	309	368	422	175	370	334
Average Queue (ft)	159	173	14	61	83	132
95th Queue (ft)	276	325	139	130	216	247
Link Distance (ft)			703	372	372	
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					1	
Storage Bay Dist (ft)	250	250				85
Storage Blk Time (%)	1	3			3	12
Queuing Penalty (veh)	4	12			13	26

Intersection: 5: Cedar Avenue & North Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	L	T	R	L	T
Maximum Queue (ft)	100	249	210	144	201	217	239	299	476	111	106	71
Average Queue (ft)	25	126	113	38	80	98	118	186	102	47	25	20
95th Queue (ft)	69	220	189	85	175	194	214	296	284	90	71	56
Link Distance (ft)		467	467		2575	2575			609			1307
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150			150			180	180		180	155	
Storage Blk Time (%)		6		0	1		0	14				
Queuing Penalty (veh)		2		0	0		1	27				

Intersection: 5: Cedar Avenue & North Avenue

Movement	SB
Directions Served	R
Maximum Queue (ft)	71
Average Queue (ft)	23
95th Queue (ft)	53
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	355
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 6: Chestnut Ave & North Avenue

Movement	EB	WB	NB	NB	NB	SB	SB	SB
Directions Served	LTR	LTR	L	T	TR	L	T	TR
Maximum Queue (ft)	858	286	197	180	214	59	151	154
Average Queue (ft)	317	136	64	100	127	22	76	92
95th Queue (ft)	643	260	124	161	191	51	125	150
Link Distance (ft)	2533	4573		5304	5304		5286	5286
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)			245			150		
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

Movement	NW	NW
Directions Served	L	R
Maximum Queue (ft)	41	108
Average Queue (ft)	6	10
95th Queue (ft)	26	53
Link Distance (ft)		1717
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	85	
Storage Blk Time (%)		1
Queuing Penalty (veh)		0

Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

Movement	EB	EB	NB	SB
Directions Served	LT	R	LTR	LTR
Maximum Queue (ft)	151	75	155	49
Average Queue (ft)	65	8	24	12
95th Queue (ft)	117	41	97	37
Link Distance (ft)	2368		3449	1087
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)	2			
Queuing Penalty (veh)	2			

Network Summary

Network wide Queuing Penalty: 773

Appendix H: State Route 99 at North and Cedar Concept and Funding

EXHIBIT 6-6

CAPACITY INCREASING PROJECT LIST

2010 THROUGH 2035

Agency	TIP/RTP Project ID	CTIPS Project ID	Description			Estimated Cost	Conformity Analysis Year (project open to traffic)								Complete
			Type of Improvement	Facility Name/Route	Project Limits		2011	2012	2014	2017	2020	2023	2025	2035	Date
Kingsburg	1062		2 lanes to 4 lanes	18th	Mountain View to Stroud	$1,875,000.00							X	X	2025
Kingsburg	924		2 LU to 4 LU	18th Avenue/Mendocino	Stroud ave. to SR 99	$682,000.00				X	X	X	X	X	2015
Kingsburg	1066		New 4 lane Expressway	Academy Parkway	Mountain View to Simpson	$4,500,000.00					X	X	X	X	2020
City of Fresno	933		2 LU to 4 LD	American	Orange to Maple	$1,200,000.00							X	X	2030
County of Fresno	1075		2 LU to 4 LU	American	SR 41 to SR 99	$6,500,000.00							X	X	2030
Clovis	400	20300000555	3 LD to 4 LD Incl Median Landscaping, some portions already exist as 4LD	Ashlan	Armstrong to Temperance	$1,100,000.00	X	X	X	X	X	X	X	X	2010
Clovis	305		3 LU to 4 LD	Ashlan	Dewolf to Leonard	$1,100,000.00				X	X	X	X	X	2015
Clovis	303		2 LU to 4 LD	Ashlan	Leonard to Highland	$5,600,000.00				X	X	X	X	X	2015
City of Fresno	195	20300000566	2 LD to 4 LD	Ashlan	Cornelia to Blythe	$650,000.00				X	X	X	X	X	2015
Clovis	304		2LU to 4LD	Ashlan	Highland to Thompson	$2,800,000.00					X	X	X	X	2018
City of Fresno	196		2 LU to 4 LD	Ashlan	Polk to Cornelia	$750,000.00					X	X	X	X	2020
City of Fresno	940		Unconstructed to 4 LD	Ashlan	Garfield to Grantland	$1,000,000.00					X	X	X	X	2020
City of Fresno	106		2LD to 4 LD	Ashlan	Bryan to Polk	$1,350,000.00					X	X	X	X	2020
Clovis	306		2LU to 4LD	Ashlan	Thompson to McCall	$2,800,000.00					X	X	X	X	2020
City of Fresno	108		2 L to 4 LD	Ashlan	Grantland to Bryan	$650,000.00							X	X	2025
Caltrans	208		Interchange Improvements	Ashlan	Grade separation @ UPRR & SR 99 interchange	$7,600,000.00								X	2035
County of Fresno	564		2 LU to 4 LD	Auberry	Copper to Millerton (W)	$51,050,000.00							X	X	2030
City of Fresno	210		3 LD to 4 LD (add WB Lane)	Belmont	Clovis to Fowler	$1,700,000.00		X	X	X	X	X	X	X	2012
City of Fresno	256		3 LU to 4 LD (add WB lane)	Belmont	Fowler to Armstrong	$500,000.00					X	X	X	X	2020
City of Fresno	255		2 LU & 4LU to 4 LD	Belmont	Brawley to SR 99	$1,700,000.00							X	X	2025
City of Fresno	249		2 LU to 4 LD	Belmont	Armstrong to Temperance	$900,000.00							X	X	2025

			incomplete portions												
Clovis	1088		2 LU to 4 LD Complete incomplete portions	Nees	Sunnyside to Fowler	$2,000,000.00					X	X	X	X	2018
Clovis	1089		2 LU to 4 LD complete incomplete portions	Nees	Fowler to Armstrong	$2,500,000.00					X	X	X	X	2018
Clovis	345		Unconstructed to 4 LD	Nees	Locan to Alluvial Alignemnt	$3,000,000.00					X	X	X	X	2020
City of Fresno	239		2 LU to 4 LU	North	Cedar to Chestnut	$1,500,000.00					X	X	X	X	2020
City of Fresno	994		2 LU to 4 LD	North	Walnut to Hwy 41	$2,500,000.00					X	X	X	X	2020
City of Fresno	261		2 LU to 4 LD, improve SR 99 interchange	North	Orange to Cedar	$12,500,000.00							X	X	2030
City of Fresno	192		2 LU to 4 LD	Peach	Kings Canyon to Belmont	$10,000,000.00				X	X	X	X	X	2015
City of Fresno	193		2 LU to 4 LD	Peach	Jensen to Butler	$1,500,000.00					X	X	X	X	2020
City of Fresno	131		2 LU to 4 LD	Polk	Gettysburg to Shaw	$5,000,000.00				X	X	X	X	X	2015
City of Fresno	913		Unconstructed to 4 LD	Polk	Olive to Belmont	$1,000,000.00				X	X	X	X	X	2015
City of Fresno	1001		2 LD to 4 LD	Polk	Olive to McKinley	$500,000.00				X	X	X	X	X	2015
City of Fresno	161		2 LU to 4 LD	Polk	Shields to Gettysburg	$1,500,000.00							X	X	2025
City of Fresno	220		2 LU to 4 LD	Polk	McKinley to Shields	$1,000,000.00							X	X	2025
Reedley	676	20300000417	2 LU to 4 LD	Reed	I Street to South Ave	$5,000,000.00		X	X	X	X	X	X	X	2013
County of Fresno	556		2 LD to 4 LD	Reed	Reedley City Limit(South ave.) to Goodfellow	$6,000,000.00							X	X	2030
Clovis	392	20300000559	4 LD to 6 LD	Shaw	Clovis to Temperance	$311,000.00		X	X	X	X	X	X	X	2012
Clovis	412		4 LU to 6 LD	Shaw	Carson to Locan	$850,000.00		X	X	X	X	X	X	X	2012
Clovis	908		2 LU to 6 LD	Shaw	Locan to Main	$1,700,000.00		X	X	X	X	X	X	X	2012
Clovis	354		2 LU to 6 LD	Shaw	Highland to McCall	$7,000,000.00				X	X	X	X	X	2015
Clovis	931		2 LU 6 LD	Shaw	DeWolf to Highland	$7,000,000.00				X	X	X	X	X	2015
City of Fresno	177		4 LD to 6 LD	Shaw	SR 99 to Brawley	$2,000,000.00							X	X	2025
City of Fresno	243		2 LU to 6 LD	Shaw	Veterans Blvd to Golden State	$4,000,000.00							X	X	2030
City of Fresno	265		2 LU to 4 LD	Shaw	Garfield to Veterans Blvd	$1,000,000.00							X	X	2030
County of Fresno	558		2 LU to 4 LD	Shaw	McCall to Academy	$10,000,000.00							X	X	2030
Clovis	359	20300000560	2 LU to 3 LD	Shepherd	Willow to 1/2 Mile east	$1,623,000.00		X	X	X	X	X	X	X	2012

TABLE 2 -- TIER 1 PROJECTS

MEASURE "C" EXTENSION EXPENDITURE PLAN

REGIONAL TRANSPORTATION FUNDING PROGRAM - URBAN TIER 1

URBAN AREA PROJECTS ASSUMING ALLOCATION OF 50% OF REGIONAL TRANSPORTATION FUNDING PROGRAM FUNDS

(The Tier 1 projects are in a generalized priority order. The funding order would be determined by Fresno COG during preparation of the biennial Expenditure Plan Update and could be affected by project cost benefit, project readiness, funding availability, etc.)

Project Identifier	Project Name	Project Limits	Project Description	Uninflated Costs	Inflated Costs [*1]	Cumulative Inflated Costs
			Tier 1 Projects			
A	SR 180 East	Clovis to Temperance	New 4 Lane Freeway within 6 Lane Right of Way	$ 33,479,701	$ 63,169,246	$ 63,169,246
B	SR 180 West	Brawley to Hughes/ West	Funding Shortfall	$ 6,995,758	$ 13,199,544	$ 76,368,790
C	SR 41/SR 168/SR 180	Added Capacity for Safe Connection Between State Routes	New Braided Ramps	$ 29,981,821	$ 56,569,474	$ 132,938,265
D	Willow Avenue	Barstow to Copper	Complete to 6 Lane Divided//retrofit bike paths	$ 13,991,517	$ 26,399,088	$ 159,337,353
E	Temperance Avenue	Bullard to Shepherd	Widen to 4 Lane Divided	$ 5,996,364	$ 11,313,895	$ 170,651,247
F	Ventura Blvd.	SR 41 to SR 99	Widen to 4 Lane Divided	$ 5,000,000	$ 9,428,246	$ 180,079,493
G	SR 99	Monterey Avenue	Bridge improvement/Improved acess to downtown from West Fresno	$ 1,000,000	$ 1,885,649	$ 181,965,142
H	California Avenue	Ventura to West	Widen to 4 Lane Divided	$ 7,995,152	$ 15,085,193	$ 197,050,335
I	Peach Avenue	SR 180 to Jensen Avenue	Widen to 4 Lane Divided	$ 24,984,851	$ 47,141,229	$ 244,191,564
J	SR 41	SB Aux. Lane, Tulare to "O"	Widen/Aux. Lanes and Improve On & Off Ramps	$ 3,000,000	$ 5,656,947	$ 249,848,511
K	Herndon Avenue	SR 99 to DeWolf	Complete to 6 Lane Divided/retrofit bike paths	$ 30,000,000	$ 56,569,474	$ 306,417,986
L	Shaw	Sunnyside - McCall	Complete to 6 Lane divided traffic signal upgrades, grade crossing	$ 31,580,852	$ 59,586,513	$ 366,004,499
M	SR 99	North & Cedar Avenue	Improve Interchange	$ 24,984,851	$ 47,141,229	$ 413,145,727
N	Veteran's Boulevard	Herndon to Grantland	Connection and grade separation	$ 60,000,000	$ 113,138,949	$ 526,284,676
			Urban Tier 1 Total		**$ 526,284,676**	

*1 Original project costs were estimated by Local Agencies, and were in 2004 Dollars. A 5% annual inflation was applied through 2017.

TABLE 3 -- TIER 1 PROJECTS

MEASURE "C" EXTENSION EXPENDITURE PLAN

REGIONAL TRANSPORTATION FUNDING PROGRAM - RURAL TIER 1

RURAL AREA PROJECTS ASSUMING ALLOCATION OF 50% OF REGIONAL TRANSPORTATION FUNDING PROGRAM FUNDS

(The Tier 1 projects are in a generalized priority order. The funding order would be determined by Fresno COG during preparation of the biennial Expenditure Plan Update and could be affected by project cost benefit, project readiness, funding availability, etc.)

Project Identifier	Project Name	Project Limits	Project Description	Uninflated Costs	Inflated Costs [*1]	Cumulative Inflated Costs
			Tier 1 Projects			
A	SR 180 West	Yuba Ave. to James Ave.	Passing lanes	$ 9,993,940	$ 18,856,491	$ 18,856,491
B	SR 180 East	Temperance to Academy	Widen to 4 Lane Divided Expressway	$ 14,491,214	$ 27,341,913	$ 46,198,404
C	SR 180 East	Academy to Trimmer Springs	Widen to 2 Lane Expressway on 4 Lane Right of Way	$ 38,976,368	$ 73,540,317	$ 119,738,721
D	SR 180 East	Trimmer Springs to Frankwood	Widen to 2 Lane Expressway on 4 Lane Right of Way	$ 42,674,126	$ 80,517,218	$ 200,255,939
E	Friant Road	Copper to Millerton	Widen to 4 Lane Divided	$ 16,490,002	$ 31,113,211	$ 231,369,150
F	Golden State Boulevard	American to Tulare County Line	Corridor Improvements	$ 34,978,792	$ 65,997,720	$ 297,366,870
G	SR 269	Bridge located between SR 198 & Huron	New Bridge & Channel to Address Seasonal Road Closures Due to Flooding	$ 16,989,699	$ 32,056,035	$ 329,422,906
H	SR 180 West	Extend to Interstate 5 (I-5)	As a 2 Lane Undivided	$ 39,975,762	$ 75,425,966	$ 404,848,871
I	Mountain View Avenue	Bethel to Tulare County Line	Widen to 4 Lane Divided	$ 5,496,667	$ 10,371,070	$ 415,219,942
J	Mendocino Avenue	Manning to Industrial Park	Widen to 4 lane Divided	$ 1,998,788	$ 3,771,298	$ 418,991,240
K	SR 99	American Avenue	Interchange Improvements	$ 24,984,851	$ 47,141,229	$ 466,132,469
L	I-5	At SR 198	Construct Interchange Improvements	$ 7,995,152	$ 15,085,193	$ 481,217,662
			Rural Tier 1 Total		**$ 481,217,662**	

*1 Original project costs were estimated by Local Agencies, and were in 2004 Dollars. A 5% annual inflation was applied through 2017.

NORTH AVENUE INTERCHANGE
ALTERNATIVE 3: SPREAD DIAMOND
SEPTEMBER 2016
NORTH AVENUE
NORTH AVENUE
NORTH AVENUE
CEDAR AVENUE
HIGH SPEED RAILS
S PARKWAY Dr

Appendix I: Cumulative Year 2035 No Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	627	134	728	565	56	31	84	194	47	337	164
Future Volume (veh/h)	48	627	134	728	565	56	31	84	194	47	337	164
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.99	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
Adj Sat Flow, veh/h/ln	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624	1624
Adj Flow Rate, veh/h	52	682	146	791	614	61	34	91	211	51	366	178
Adj No. of Lanes	1	2	1	2	2	1	1	1	2	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	17	17	17	17	17	17	17	17	17	17	17	17
Cap, veh/h	63	908	405	800	1606	716	39	290	430	61	595	265
Arrive On Green	0.04	0.29	0.29	0.27	0.52	0.52	0.03	0.18	0.18	0.04	0.19	0.19
Sat Flow, veh/h	1547	3085	1376	3000	3085	1376	1547	1624	2409	1547	3085	1374
Grp Volume(v), veh/h	52	682	146	791	614	61	34	91	211	51	366	178
Grp Sat Flow(s),veh/h/ln	1547	1543	1376	1500	1543	1376	1547	1624	1204	1547	1543	1374
Q Serve(g_s), s	3.0	17.9	7.5	23.4	10.6	2.0	2.0	4.4	7.0	2.9	9.7	10.7
Cycle Q Clear(g_c), s	3.0	17.9	7.5	23.4	10.6	2.0	2.0	4.4	7.0	2.9	9.7	10.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	63	908	405	800	1606	716	39	290	430	61	595	265
V/C Ratio(X)	0.83	0.75	0.36	0.99	0.38	0.09	0.87	0.31	0.49	0.83	0.62	0.67
Avail Cap(c_a), veh/h	170	1096	489	800	1606	716	118	564	837	66	968	431
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	28.5	24.8	32.6	12.8	10.7	43.3	31.9	33.0	42.5	33.0	33.4
Incr Delay (d2), s/veh	22.9	2.4	0.5	28.8	0.1	0.1	39.5	0.6	0.9	54.8	1.0	3.0
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	1.7	7.9	2.9	12.9	4.6	0.8	1.3	2.0	2.4	2.2	4.2	4.3
LnGrp Delay(d),s/veh	65.4	30.9	25.4	61.3	13.0	10.8	82.8	32.5	33.9	97.4	34.0	36.4
LnGrp LOS	E	C	C	E	B	B	F	C	C	F	C	D
Approach Vol, veh/h		880			1466			336			595	
Approach Delay, s/veh		32.0			39.0			38.5			40.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	21.9	28.0	31.6	6.5	23.2	7.8	51.7
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	* 4.2	6.0	* 4.2	5.3
Max Green Setting (Gmax), s	* 3.8	31.0	* 24	31.7	* 6.8	28.0	* 9.8	45.7
Max Q Clear Time (g_c+I1), s	4.9	9.0	25.4	19.9	4.0	12.7	5.0	12.6
Green Ext Time (p_c), s	0.0	4.0	0.0	6.1	0.0	3.6	0.0	11.1

Intersection Summary	
HCM 2010 Ctrl Delay	37.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	438	430	121	748	0	0	0	0	265	0	601
Future Volume (veh/h)	0	438	430	121	748	0	0	0	0	265	0	601
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1496	1496	1496	1496	0				1496	0	1496
Adj Flow Rate, veh/h	0	476	467	132	813	0				288	0	653
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	27	27	27	27	0				27	0	27
Cap, veh/h	0	1104	494	281	1644	0				820	0	664
Arrive On Green	0.00	0.39	0.39	0.20	1.00	0.00				0.30	0.00	0.30
Sat Flow, veh/h	0	2917	1272	2764	2917	0				2764	0	2238
Grp Volume(v), veh/h	0	476	467	132	813	0				288	0	653
Grp Sat Flow(s),veh/h/ln	0	1421	1272	1382	1421	0				1382	0	1119
Q Serve(g_s), s	0.0	7.4	21.3	2.5	0.0	0.0				4.9	0.0	17.4
Cycle Q Clear(g_c), s	0.0	7.4	21.3	2.5	0.0	0.0				4.9	0.0	17.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1104	494	281	1644	0				820	0	664
V/C Ratio(X)	0.00	0.43	0.95	0.47	0.49	0.00				0.35	0.00	0.98
Avail Cap(c_a), veh/h	0	1104	494	281	1644	0				820	0	664
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.66	0.66	0.85	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.5	17.7	22.5	0.0	0.0				16.6	0.0	21.0
Incr Delay (d2), s/veh	0.0	0.8	22.0	1.0	0.9	0.0				0.3	0.0	30.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	10.4	1.0	0.2	0.0				1.9	0.0	8.2
LnGrp Delay(d),s/veh	0.0	14.3	39.7	23.5	0.9	0.0				16.8	0.0	51.6
LnGrp LOS		B	D	C	A					B		D
Approach Vol, veh/h		943			945						941	
Approach Delay, s/veh		26.9			4.1						41.0	
Approach LOS		C			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			11.5	28.6		22.0		40.1
Change Period (Y+Rc), s			5.3	* 5.3		4.2		5.3
Max Green Setting (Gmax), s			5.2	* 23		17.8		32.7
Max Q Clear Time (g_c+I1), s			4.5	23.3		19.4		2.0
Green Ext Time (p_c), s			0.1	0.0		0.0		6.5

Intersection Summary			
HCM 2010 Ctrl Delay			23.9
HCM 2010 LOS			C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	552	0	0	650	108	219	0	69	0	0	0
Future Volume (veh/h)	151	552	0	0	650	108	219	0	69	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1439	1439	0	0	1439	1439	1439	0	1439			
Adj Flow Rate, veh/h	161	587	0	0	691	115	233	0	73			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	32	32	0	0	32	32	32	0	32			
Cap, veh/h	818	1966	0	0	882	393	327	0	150			
Arrive On Green	0.62	1.00	0.00	0.00	0.32	0.32	0.12	0.00	0.12			
Sat Flow, veh/h	2659	2807	0	0	2807	1218	2659	0	1223			
Grp Volume(v), veh/h	161	587	0	0	691	115	233	0	73			
Grp Sat Flow(s),veh/h/ln	1330	1367	0	0	1367	1218	1330	0	1223			
Q Serve(g_s), s	1.6	0.0	0.0	0.0	13.7	4.2	5.1	0.0	3.3			
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.0	13.7	4.2	5.1	0.0	3.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	818	1966	0	0	882	393	327	0	150			
V/C Ratio(X)	0.20	0.30	0.00	0.00	0.78	0.29	0.71	0.00	0.49			
Avail Cap(c_a), veh/h	818	1966	0	0	1217	542	479	0	220			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.90	0.90	0.00	0.00	0.73	0.73	1.00	0.00	1.00			
Uniform Delay (d), s/veh	8.3	0.0	0.0	0.0	18.4	15.2	25.3	0.0	24.5			
Incr Delay (d2), s/veh	0.1	0.4	0.0	0.0	5.1	1.4	2.9	0.0	2.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.6	0.1	0.0	0.0	5.8	1.6	2.0	0.0	1.2			
LnGrp Delay(d),s/veh	8.4	0.4	0.0	0.0	23.5	16.6	28.2	0.0	27.0			
LnGrp LOS	A	A			C	B	C		C			
Approach Vol, veh/h		748			806			306				
Approach Delay, s/veh		2.1			22.5			27.9				
Approach LOS		A			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		11.6		48.4			23.8	24.7
Change Period (Y+Rc), s		* 4.2		5.3			5.3	* 5.3
Max Green Setting (Gmax), s		* 11		39.7			8.8	* 27
Max Q Clear Time (g_c+I1), s		7.1		2.0			3.6	15.7
Green Ext Time (p_c), s		0.4		4.8			2.0	3.6

Intersection Summary	
HCM 2010 Ctrl Delay	15.2
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	455	77	71	650	68	79	39	80	9	35	29
Future Volume (veh/h)	89	455	77	71	650	68	79	39	80	9	35	29
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.99	1.00		0.99
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
Adj Sat Flow, veh/h/ln	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439
Adj Flow Rate, veh/h	97	495	84	77	707	74	86	42	87	10	38	32
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	32	32	32	32	32	32	32	32	32	32	32	32
Cap, veh/h	113	1116	497	87	1065	474	99	245	208	18	160	135
Arrive On Green	0.08	0.41	0.41	0.06	0.39	0.39	0.07	0.17	0.17	0.01	0.11	0.11
Sat Flow, veh/h	1371	2735	1219	1371	2735	1219	1371	1439	1217	1371	1439	1214
Grp Volume(v), veh/h	97	495	84	77	707	74	86	42	87	10	38	32
Grp Sat Flow(s),veh/h/ln	1371	1367	1219	1371	1367	1219	1371	1439	1217	1371	1439	1214
Q Serve(g_s), s	3.8	7.1	2.4	3.0	11.5	2.1	3.3	1.3	3.4	0.4	1.3	1.3
Cycle Q Clear(g_c), s	3.8	7.1	2.4	3.0	11.5	2.1	3.3	1.3	3.4	0.4	1.3	1.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	113	1116	497	87	1065	474	99	245	208	18	160	135
V/C Ratio(X)	0.86	0.44	0.17	0.88	0.66	0.16	0.87	0.17	0.42	0.57	0.24	0.24
Avail Cap(c_a), veh/h	198	1552	692	173	1501	669	178	907	767	127	854	720
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	11.5	10.2	25.0	13.6	10.7	24.8	19.1	20.0	26.5	21.9	21.9
Incr Delay (d2), s/veh	16.5	0.3	0.2	22.9	0.7	0.2	19.6	0.3	1.3	25.3	0.8	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.7	0.8	1.7	4.4	0.7	1.8	0.6	1.2	0.3	0.6	0.5
LnGrp Delay(d),s/veh	41.0	11.8	10.3	48.0	14.3	10.9	44.4	19.4	21.3	51.8	22.6	22.8
LnGrp LOS	D	B	B	D	B	B	D	B	C	D	C	C
Approach Vol, veh/h		676			858			215			80	
Approach Delay, s/veh		15.8			17.0			30.2			26.3	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	14.1	7.6	27.3	8.1	10.9	8.6	26.3
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 5	34.0	* 6.8	30.6	* 7	32.0	* 7.8	29.6
Max Q Clear Time (g_c+I1), s	2.4	5.4	5.0	9.1	5.3	3.3	5.8	13.5
Green Ext Time (p_c), s	0.0	0.7	0.0	8.7	0.0	0.7	0.0	7.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	300	162	66	204	52	199	368	44	96	413	180
Future Volume (veh/h)	219	300	162	66	204	52	199	368	44	96	413	180
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	238	326	176	72	222	57	216	400	48	104	449	196
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	260	309	164	156	453	110	210	711	85	104	393	170
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.13	0.24	0.24	0.06	0.17	0.17
Sat Flow, veh/h	386	550	292	207	807	197	1675	3008	359	1675	2273	984
Grp Volume(v), veh/h	740	0	0	351	0	0	216	221	227	104	329	316
Grp Sat Flow(s),veh/h/ln	1229	0	0	1211	0	0	1675	1671	1696	1675	1671	1586
Q Serve(g_s), s	45.0	0.0	0.0	0.0	0.0	0.0	13.8	12.8	13.0	6.8	19.0	19.0
Cycle Q Clear(g_c), s	61.7	0.0	0.0	16.7	0.0	0.0	13.8	12.8	13.0	6.8	19.0	19.0
Prop In Lane	0.32		0.24	0.21		0.16	1.00		0.21	1.00		0.62
Lane Grp Cap(c), veh/h	732	0	0	719	0	0	210	395	401	104	289	274
V/C Ratio(X)	1.01	0.00	0.00	0.49	0.00	0.00	1.03	0.56	0.57	1.00	1.14	1.15
Avail Cap(c_a), veh/h	732	0	0	719	0	0	210	400	405	104	289	274
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	0.0	0.0	13.9	0.0	0.0	48.1	37.0	37.0	51.6	45.5	45.5
Incr Delay (d2), s/veh	35.8	0.0	0.0	0.5	0.0	0.0	69.4	1.7	1.8	89.5	96.3	102.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.5	0.0	0.0	6.3	0.0	0.0	10.4	6.1	6.2	5.7	16.5	16.1
LnGrp Delay(d),s/veh	63.0	0.0	0.0	14.4	0.0	0.0	117.7	38.7	38.8	141.1	141.8	147.8
LnGrp LOS	F			B			F	D	D	F	F	F
Approach Vol, veh/h		740			351			664			749	
Approach Delay, s/veh		63.0			14.4			64.4			144.2	
Approach LOS		E			B			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	32.0		67.0	18.0	25.0		67.0
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 6.8	* 26		61.7	* 14	19.0		61.7
Max Q Clear Time (g_c+I1), s	8.8	15.0		63.7	15.8	21.0		18.7
Green Ext Time (p_c), s	0.0	4.5		0.0	0.0	0.0		9.8

Intersection Summary		
HCM 2010 Ctrl Delay		80.9
HCM 2010 LOS		F

Notes

Intersection						
Int Delay, s/veh	5.4					

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	16	147	159	24	51	199
Future Vol, veh/h	16	147	159	24	51	199
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	-	-	-	50	0	65
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	50	50	50
Mvmt Flow	17	160	173	26	55	216

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	173	0	-	0	368	173
Stage 1	-	-	-	-	173	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	4.6	-	-	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.65	-	-	-	3.95	3.75
Pot Cap-1 Maneuver	1160	-	-	0	547	760
Stage 1	-	-	-	0	754	-
Stage 2	-	-	-	0	735	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1160	-	-	-	538	760
Mov Cap-2 Maneuver	-	-	-	-	538	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	723	-

Approach	NB	SB	SE
HCM Control Delay, s	0.8	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SELn2	SBT
Capacity (veh/h)	1160	-	538	760	-
HCM Lane V/C Ratio	0.015	-	0.103	0.285	-
HCM Control Delay (s)	8.2	0	12.5	11.6	-
HCM Lane LOS	A	A	B	B	-
HCM 95th %tile Q(veh)	0	-	0.3	1.2	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	712	104	241	733	28	144	374	778	73	110	125
Future Volume (veh/h)	145	712	104	241	733	28	144	374	778	73	110	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.99
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
Adj Sat Flow, veh/h/ln	1638	1638	1638	1638	1638	1638	1638	1638	1638	1638	1638	1638
Adj Flow Rate, veh/h	158	774	113	262	797	30	157	407	846	79	120	136
Adj No. of Lanes	1	2	1	2	2	1	1	1	2	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	16	16	16	16	16	16	16	16	16	16	16	16
Cap, veh/h	181	896	400	535	1113	496	389	491	731	97	350	155
Arrive On Green	0.12	0.29	0.29	0.35	0.72	0.72	0.42	0.50	0.50	0.06	0.11	0.11
Sat Flow, veh/h	1560	3112	1388	3026	3112	1386	1560	1638	2438	1560	3112	1381
Grp Volume(v), veh/h	158	774	113	262	797	30	157	407	846	79	120	136
Grp Sat Flow(s),veh/h/ln	1560	1556	1388	1513	1556	1386	1560	1638	1219	1560	1556	1381
Q Serve(g_s), s	12.0	28.3	7.6	8.1	17.9	0.6	8.5	25.4	36.0	6.0	4.3	9.0
Cycle Q Clear(g_c), s	12.0	28.3	7.6	8.1	17.9	0.6	8.5	25.4	36.0	6.0	4.3	9.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	181	896	400	535	1113	496	389	491	731	97	350	155
V/C Ratio(X)	0.87	0.86	0.28	0.49	0.72	0.06	0.40	0.83	1.16	0.82	0.34	0.87
Avail Cap(c_a), veh/h	205	1107	494	535	1113	496	389	491	731	114	752	334
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	40.5	33.1	34.6	13.5	6.8	28.7	27.3	29.9	55.6	49.2	31.3
Incr Delay (d2), s/veh	28.7	10.8	1.8	0.6	3.6	0.2	0.7	11.3	85.5	31.0	0.6	14.0
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	6.6	13.5	3.1	3.4	7.9	0.3	3.7	12.8	20.5	3.4	1.9	4.0
LnGrp Delay(d),s/veh	80.8	51.3	34.9	35.2	17.1	7.0	29.4	38.6	115.4	86.6	49.7	45.4
LnGrp LOS	F	D	C	D	B	A	C	D	F	F	D	D
Approach Vol, veh/h		1045			1089			1410			335	
Approach Delay, s/veh		54.0			21.2			83.7			56.6	
Approach LOS		D			C			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	42.0	26.5	39.8	34.1	19.5	18.1	48.2
Change Period (Y+Rc), s	4.2	* 6	5.3	* 5.3	4.2	* 6	* 4.2	5.3
Max Green Setting (Gmax), s	8.8	* 36	12.8	* 43	15.8	* 29	* 16	39.7
Max Q Clear Time (g_c+I1), s	8.0	38.0	10.1	30.3	10.5	11.0	14.0	19.9
Green Ext Time (p_c), s	0.0	0.0	1.5	4.3	0.3	1.0	0.1	6.1

Intersection Summary	
HCM 2010 Ctrl Delay	55.8
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1126	437	153	783	0	0	0	0	129	0	219
Future Volume (veh/h)	0	1126	437	153	783	0	0	0	0	129	0	219
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1557	1557	1557	1557	0				1557	0	1557
Adj Flow Rate, veh/h	0	1198	465	163	833	0				137	0	233
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	22	22	22	22	0				22	0	22
Cap, veh/h	0	1417	634	463	2155	0				326	0	264
Arrive On Green	0.00	0.64	0.64	0.32	1.00	0.00				0.11	0.00	0.11
Sat Flow, veh/h	0	3037	1324	2877	3037	0				2877	0	2330
Grp Volume(v), veh/h	0	1198	465	163	833	0				137	0	233
Grp Sat Flow(s),veh/h/ln	0	1480	1324	1439	1480	0				1439	0	1165
Q Serve(g_s), s	0.0	19.1	14.4	2.6	0.0	0.0				2.7	0.0	5.9
Cycle Q Clear(g_c), s	0.0	19.1	14.4	2.6	0.0	0.0				2.7	0.0	5.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1417	634	463	2155	0				326	0	264
V/C Ratio(X)	0.00	0.85	0.73	0.35	0.39	0.00				0.42	0.00	0.88
Avail Cap(c_a), veh/h	0	1662	744	463	2155	0				326	0	264
HCM Platoon Ratio	1.00	1.33	1.33	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.57	0.57	0.69	0.69	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	9.1	8.3	17.9	0.0	0.0				24.8	0.0	26.2
Incr Delay (d2), s/veh	0.0	3.8	4.3	0.3	0.4	0.0				0.9	0.0	27.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	5.8	1.0	0.1	0.0				1.1	0.0	2.9
LnGrp Delay(d),s/veh	0.0	12.9	12.6	18.3	0.4	0.0				25.6	0.0	53.7
LnGrp LOS		B	B	B	A					C		D
Approach Vol, veh/h		1663			996						370	
Approach Delay, s/veh		12.8			3.3						43.3	
Approach LOS		B			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			15.0	34.0		11.0		49.0
Change Period (Y+Rc), s			5.3	* 5.3		4.2		5.3
Max Green Setting (Gmax), s			5.8	* 34		6.8		43.7
Max Q Clear Time (g_c+I1), s			4.6	21.1		7.9		2.0
Green Ext Time (p_c), s			0.7	7.6		0.0		7.1

Intersection Summary			
HCM 2010 Ctrl Delay			13.4
HCM 2010 LOS			B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	638	617	0	0	649	403	287	0	104	0	0	0
Future Volume (veh/h)	638	617	0	0	649	403	287	0	104	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1652	1652	0	0	1652	1652	1652	0	1652			
Adj Flow Rate, veh/h	693	671	0	0	705	438	312	0	113			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	15	15	0	0	15	15	15	0	15			
Cap, veh/h	887	2220	0	0	1031	459	410	0	189			
Arrive On Green	0.49	1.00	0.00	0.00	0.11	0.11	0.13	0.00	0.13			
Sat Flow, veh/h	3053	3222	0	0	3222	1398	3053	0	1404			
Grp Volume(v), veh/h	693	671	0	0	705	438	312	0	113			
Grp Sat Flow(s),veh/h/ln	1526	1570	0	0	1570	1398	1526	0	1404			
Q Serve(g_s), s	11.3	0.0	0.0	0.0	13.0	18.7	5.9	0.0	4.5			
Cycle Q Clear(g_c), s	11.3	0.0	0.0	0.0	13.0	18.7	5.9	0.0	4.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	887	2220	0	0	1031	459	410	0	189			
V/C Ratio(X)	0.78	0.30	0.00	0.00	0.68	0.95	0.76	0.00	0.60			
Avail Cap(c_a), veh/h	906	2220	0	0	1031	459	448	0	206			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	0.33	0.33	1.00	1.00	1.00			
Upstream Filter(I)	0.61	0.61	0.00	0.00	0.78	0.78	1.00	0.00	1.00			
Uniform Delay (d), s/veh	13.9	0.0	0.0	0.0	23.8	26.3	25.0	0.0	24.4			
Incr Delay (d2), s/veh	2.7	0.2	0.0	0.0	2.9	27.5	6.9	0.0	4.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.0	0.1	0.0	0.0	6.1	10.7	2.9	0.0	2.0			
LnGrp Delay(d),s/veh	16.6	0.2	0.0	0.0	26.7	53.8	31.9	0.0	28.5			
LnGrp LOS	B	A			C	D	C		C			
Approach Vol, veh/h		1364			1143			425				
Approach Delay, s/veh		8.5			37.1			31.0				
Approach LOS		A			D			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		12.3		47.7			22.7	25.0
Change Period (Y+Rc), s		* 4.2		5.3			5.3	* 5.3
Max Green Setting (Gmax), s		* 8.8		41.7			17.8	* 20
Max Q Clear Time (g_c+I1), s		7.9		2.0			13.3	20.7
Green Ext Time (p_c), s		0.2		8.3			2.7	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		22.9
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰	↑↑	↱	↰	↑	↱	↰	↑	↱
Traffic Volume (veh/h)	35	675	11	95	805	18	203	66	136	13	17	44
Future Volume (veh/h)	35	675	11	95	805	18	203	66	136	13	17	44
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.99
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
Adj Sat Flow, veh/h/ln	1557	1557	1557	1557	1557	1557	1557	1557	1557	1557	1557	1557
Adj Flow Rate, veh/h	38	734	12	103	875	20	221	72	148	14	18	48
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	22	22	22	22	22	22	22	22	22	22	22	22
Cap, veh/h	397	1526	681	123	951	424	247	360	305	23	115	97
Arrive On Green	0.36	0.69	0.69	0.08	0.32	0.32	0.17	0.23	0.23	0.02	0.07	0.07
Sat Flow, veh/h	1483	2959	1320	1483	2959	1318	1483	1557	1319	1483	1557	1308
Grp Volume(v), veh/h	38	734	12	103	875	20	221	72	148	14	18	48
Grp Sat Flow(s),veh/h/ln	1483	1480	1320	1483	1480	1318	1483	1557	1319	1483	1557	1308
Q Serve(g_s), s	2.0	14.0	0.2	8.2	34.2	1.1	17.5	4.5	11.7	1.1	1.3	4.2
Cycle Q Clear(g_c), s	2.0	14.0	0.2	8.2	34.2	1.1	17.5	4.5	11.7	1.1	1.3	4.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	397	1526	681	123	951	424	247	360	305	23	115	97
V/C Ratio(X)	0.10	0.48	0.02	0.84	0.92	0.05	0.89	0.20	0.49	0.61	0.16	0.50
Avail Cap(c_a), veh/h	397	1526	681	147	1013	451	282	646	547	62	415	349
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.0	11.3	2.1	54.3	39.2	20.8	49.0	37.2	40.0	58.7	52.0	53.4
Incr Delay (d2), s/veh	0.1	1.0	0.0	29.1	15.2	0.2	26.2	0.3	1.2	23.1	0.6	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.8	0.1	4.4	16.0	0.4	9.0	1.9	4.3	0.6	0.6	1.6
LnGrp Delay(d),s/veh	29.1	12.4	2.2	83.4	54.4	21.0	75.1	37.5	41.2	81.8	52.7	57.3
LnGrp LOS	C	B	A	F	D	C	E	D	D	F	D	E
Approach Vol, veh/h		784			998			441			80	
Approach Delay, s/veh		13.0			56.8			57.6			60.5	
Approach LOS		B			E			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	32.6	14.1	67.2	24.9	13.8	37.4	43.9
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	4.9	* 4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 5	49.8	* 12	34.7	22.8	* 32	5.5	* 41
Max Q Clear Time (g_c+I1), s	3.1	13.7	10.2	16.0	19.5	6.2	4.0	36.2
Green Ext Time (p_c), s	0.0	1.5	0.0	4.7	0.5	0.2	0.7	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	42.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	250	300	52	301	87	288	601	51	42	480	205
Future Volume (veh/h)	163	250	300	52	301	87	288	601	51	42	480	205
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	170	260	312	54	314	91	300	626	53	44	500	214
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	168	221	256	91	491	136	249	958	81	55	438	187
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.15	0.31	0.31	0.03	0.19	0.19
Sat Flow, veh/h	246	417	481	108	925	256	1675	3120	264	1675	2286	973
Grp Volume(v), veh/h	742	0	0	459	0	0	300	335	344	44	365	349
Grp Sat Flow(s),veh/h/ln	1145	0	0	1289	0	0	1675	1671	1713	1675	1671	1588
Q Serve(g_s), s	36.6	0.0	0.0	0.0	0.0	0.0	17.8	20.8	20.9	3.1	23.0	23.0
Cycle Q Clear(g_c), s	63.7	0.0	0.0	27.1	0.0	0.0	17.8	20.8	20.9	3.1	23.0	23.0
Prop In Lane	0.23		0.42	0.12		0.20	1.00		0.15	1.00		0.61
Lane Grp Cap(c), veh/h	645	0	0	718	0	0	249	513	526	55	320	304
V/C Ratio(X)	1.15	0.00	0.00	0.64	0.00	0.00	1.21	0.65	0.65	0.80	1.14	1.15
Avail Cap(c_a), veh/h	645	0	0	718	0	0	249	513	526	67	320	304
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.8	0.0	0.0	18.9	0.0	0.0	51.1	36.0	36.0	57.6	48.5	48.5
Incr Delay (d2), s/veh	85.1	0.0	0.0	1.9	0.0	0.0	124.7	2.9	2.9	41.1	93.5	97.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	36.5	0.0	0.0	10.8	0.0	0.0	16.8	10.0	10.3	2.1	18.9	18.3
LnGrp Delay(d),s/veh	116.9	0.0	0.0	20.8	0.0	0.0	175.8	39.0	39.0	98.7	142.0	146.0
LnGrp LOS	F			C			F	D	D	F	F	F
Approach Vol, veh/h		742			459			979			758	
Approach Delay, s/veh		116.9			20.8			80.9			141.3	
Approach LOS		F			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	42.9		69.0	22.0	29.0		69.0
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 4.8	* 36		63.7	* 18	23.0		63.7
Max Q Clear Time (g_c+I1), s	5.1	22.9		65.7	19.8	25.0		29.1
Green Ext Time (p_c), s	0.0	6.3		0.0	0.0	0.0		10.8

Intersection Summary	
HCM 2010 Ctrl Delay	96.2
HCM 2010 LOS	F

Notes

Intersection						
Int Delay, s/veh	2.2					

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	19	380	107	16	25	95
Future Vol, veh/h	19	380	107	16	25	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	-	-	-	50	0	65
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	22	22	22	22	22	22
Mvmt Flow	20	404	114	17	27	101

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	114	0	-	0	559	114
Stage 1	-	-	-	-	114	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	4.32	-	-	-	6.62	6.42
Critical Hdwy Stg 1	-	-	-	-	5.62	-
Critical Hdwy Stg 2	-	-	-	-	5.62	-
Follow-up Hdwy	2.398	-	-	-	3.698	3.498
Pot Cap-1 Maneuver	1360	-	-	0	458	887
Stage 1	-	-	-	0	863	-
Stage 2	-	-	-	0	606	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1360	-	-	-	449	887
Mov Cap-2 Maneuver	-	-	-	-	449	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	594	-

Approach	NB	SB	SE
HCM Control Delay, s	0.4	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SELn2	SBT
Capacity (veh/h)	1360	-	449	887	-
HCM Lane V/C Ratio	0.015	-	0.059	0.114	-
HCM Control Delay (s)	7.7	0	13.5	9.6	-
HCM Lane LOS	A	A	B	A	-
HCM 95th %tile Q(veh)	0	-	0.2	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	219	300	162	66	204	52	199	368	44	96	413	180
Future Volume (veh/h)	219	300	162	66	204	52	199	368	44	96	413	180
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1652	1652	1652	1652	1652	1652	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	238	326	176	72	222	57	216	400	48	104	449	196
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	256	515	437	89	340	288	208	915	109	130	585	253
Arrive On Green	0.16	0.31	0.31	0.06	0.21	0.21	0.12	0.30	0.30	0.08	0.26	0.26
Sat Flow, veh/h	1573	1652	1402	1573	1652	1400	1675	3008	359	1675	2273	984
Grp Volume(v), veh/h	238	326	176	72	222	57	216	221	227	104	329	316
Grp Sat Flow(s),veh/h/ln	1573	1652	1402	1573	1652	1400	1675	1671	1696	1675	1671	1586
Q Serve(g_s), s	11.8	13.3	7.8	3.6	9.7	2.7	9.8	8.4	8.5	4.8	14.3	14.6
Cycle Q Clear(g_c), s	11.8	13.3	7.8	3.6	9.7	2.7	9.8	8.4	8.5	4.8	14.3	14.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.62
Lane Grp Cap(c), veh/h	256	515	437	89	340	288	208	508	516	130	430	408
V/C Ratio(X)	0.93	0.63	0.40	0.81	0.65	0.20	1.04	0.44	0.44	0.80	0.76	0.77
Avail Cap(c_a), veh/h	256	730	619	214	686	581	208	579	588	166	530	503
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.6	23.3	21.4	36.8	28.7	25.9	34.5	22.0	22.0	35.7	27.0	27.1
Incr Delay (d2), s/veh	38.1	1.3	0.6	15.7	2.1	0.3	72.2	0.6	0.6	18.8	5.3	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	6.3	3.1	1.9	4.6	1.0	8.6	4.0	4.1	2.9	7.2	7.0
LnGrp Delay(d),s/veh	70.6	24.6	22.0	52.5	30.9	26.2	106.8	22.6	22.6	54.5	32.3	33.0
LnGrp LOS	E	C	C	D	C	C	F	C	C	D	C	C
Approach Vol, veh/h		740			351			664			749	
Approach Delay, s/veh		38.8			34.5			50.0			35.7	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	30.0	8.7	29.8	14.0	26.3	17.0	21.5
Change Period (Y+Rc), s	* 4.2	* 6	* 4.2	5.3	* 4.2	6.0	* 4.2	5.3
Max Green Setting (Gmax), s	* 7.8	* 27	* 11	34.8	* 9.8	25.0	* 13	32.7
Max Q Clear Time (g_c+I1), s	6.8	10.5	5.6	15.3	11.8	16.6	13.8	11.7
Green Ext Time (p_c), s	0.0	5.5	0.1	3.7	0.0	3.7	0.0	3.7

Intersection Summary		
HCM 2010 Ctrl Delay		40.2
HCM 2010 LOS		D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	250	300	52	301	87	288	601	51	42	480	205
Future Volume (veh/h)	163	250	300	52	301	87	288	601	51	42	480	205
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1652	1652	1652	1652	1652	1652	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	170	260	312	54	314	91	300	626	53	44	500	214
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	160	517	438	66	418	354	268	1201	102	54	589	251
Arrive On Green	0.10	0.31	0.31	0.04	0.25	0.25	0.16	0.39	0.39	0.03	0.26	0.26
Sat Flow, veh/h	1573	1652	1402	1573	1652	1401	1675	3120	264	1675	2286	973
Grp Volume(v), veh/h	170	260	312	54	314	91	300	335	344	44	365	349
Grp Sat Flow(s),veh/h/ln	1573	1652	1402	1573	1652	1401	1675	1671	1713	1675	1671	1588
Q Serve(g_s), s	8.8	11.1	17.0	2.9	15.1	4.5	13.8	13.3	13.4	2.3	17.9	18.1
Cycle Q Clear(g_c), s	8.8	11.1	17.0	2.9	15.1	4.5	13.8	13.3	13.4	2.3	17.9	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.61
Lane Grp Cap(c), veh/h	160	517	438	66	418	354	268	644	659	54	430	409
V/C Ratio(X)	1.06	0.50	0.71	0.82	0.75	0.26	1.12	0.52	0.52	0.82	0.85	0.85
Avail Cap(c_a), veh/h	160	671	570	117	625	530	268	644	659	132	484	459
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	24.2	26.2	41.0	29.8	25.8	36.3	20.4	20.4	41.5	30.5	30.5
Incr Delay (d2), s/veh	88.1	0.8	2.9	20.9	2.8	0.4	91.4	0.8	0.7	24.6	12.2	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	5.2	6.9	1.7	7.2	1.8	13.1	6.3	6.4	1.4	9.7	9.5
LnGrp Delay(d),s/veh	126.9	25.0	29.1	61.9	32.6	26.2	127.7	21.2	21.2	66.1	42.6	43.9
LnGrp LOS	F	C	C	E	C	C	F	C	C	E	D	D
Approach Vol, veh/h		742			459			979			758	
Approach Delay, s/veh		50.1			34.7			53.8			44.6	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	39.3	7.8	32.3	18.0	28.2	13.0	27.1
Change Period (Y+Rc), s	* 4.2	* 6	* 4.2	5.3	* 4.2	6.0	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 32	* 6.4	35.1	* 14	25.0	* 8.8	32.7
Max Q Clear Time (g_c+I1), s	4.3	15.4	4.9	19.0	15.8	20.1	10.8	17.1
Green Ext Time (p_c), s	0.0	7.2	0.0	4.2	0.0	2.2	0.0	4.1

Intersection Summary	
HCM 2010 Ctrl Delay	47.5
HCM 2010 LOS	D

Notes

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	T	R
Maximum Queue (ft)	131	216	262	162	335	419	749	162	53	110	172	132
Average Queue (ft)	34	129	180	47	228	259	159	92	10	28	52	49
95th Queue (ft)	79	209	272	104	352	402	453	164	35	69	113	101
Link Distance (ft)		2611	2611				774	774				
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			250	250	250			100	150		250
Storage Blk Time (%)			1		6	11		7			1	
Queuing Penalty (veh)			2		17	31		4			2	

Intersection: 1: Orange Avenue & North Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	82	129	156	182	146
Average Queue (ft)	37	37	87	84	52
95th Queue (ft)	67	84	136	154	105
Link Distance (ft)			208	208	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250	100			150
Storage Blk Time (%)		5	3	1	1
Queuing Penalty (veh)		8	2	2	1

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	319	138	285	113	112	207	184	105	210	268	273
Average Queue (ft)	141	79	120	16	68	96	75	42	79	184	107
95th Queue (ft)	240	141	232	62	104	177	138	86	143	258	218
Link Distance (ft)	774	774				771	771			1043	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	300	300			300	300		300
Storage Blk Time (%)			0								
Queuing Penalty (veh)			0								

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	T	T	R	L	L	R
Maximum Queue (ft)	136	142	129	137	248	232	114	140	198	94
Average Queue (ft)	47	87	47	53	143	112	37	58	77	42
95th Queue (ft)	106	139	102	119	247	217	88	113	153	84
Link Distance (ft)			771	771	850	850			998	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300	300					300	300		300
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	172	158	154	54	126	173	140	80	170	125	52	45
Average Queue (ft)	71	62	55	22	48	100	65	19	57	24	20	8
95th Queue (ft)	133	128	125	54	102	155	134	51	120	69	43	30
Link Distance (ft)		850	850			2586	2586			1732		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			250	250			250	250		250	250
Storage Blk Time (%)												
Queuing Penalty (veh)												

Intersection: 5: Cedar Avenue & North Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	109	60
Average Queue (ft)	32	17
95th Queue (ft)	77	46
Link Distance (ft)	1294	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	302	292	96	171	246	97	364	426	186	174	180	232
Average Queue (ft)	158	129	46	57	112	29	143	100	108	62	90	124
95th Queue (ft)	247	241	76	122	194	71	276	226	174	125	156	192
Link Distance (ft)		2528			4573			5286	5286		5279	5279
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250		250	250		250	245			150		
Storage Blk Time (%)	0	0			0		6			1	0	
Queuing Penalty (veh)	2	1			0		11			1	0	

Intersection: 8: Cedar Avenue & Parkway Drive

Movement	NB	SE	SE
Directions Served	LT	L	R
Maximum Queue (ft)	72	185	139
Average Queue (ft)	14	34	56
95th Queue (ft)	52	92	123
Link Distance (ft)	3472		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			65
Storage Blk Time (%)		0	6
Queuing Penalty (veh)		1	3

Zone Summary

Zone wide Queuing Penalty: 89

Intersection: 1: Orange Avenue & North Avenue

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	L	L	T	T	R	L	T	R
Maximum Queue (ft)	349	373	489	370	186	210	365	352	220	250	319	334
Average Queue (ft)	149	210	220	41	68	94	163	164	15	115	250	257
95th Queue (ft)	269	331	363	148	140	164	295	311	82	231	353	350
Link Distance (ft)		2611	2611				774	774				
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			250	250	250			100	150		250
Storage Blk Time (%)	2	5	7				4	25		1	27	8
Queuing Penalty (veh)	6	8	7				11	7		15	245	43

Intersection: 1: Orange Avenue & North Avenue

Movement	NB	SB	SB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	310	152	204	169	91
Average Queue (ft)	176	68	51	31	38
95th Queue (ft)	311	125	115	94	76
Link Distance (ft)			208	208	
Upstream Blk Time (%)			0		
Queuing Penalty (veh)			0		
Storage Bay Dist (ft)	250	100			150
Storage Blk Time (%)	1	9	2	0	
Queuing Penalty (veh)	4	5	2	0	

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	340	287	181	85	147	177	290	85	119	142	79
Average Queue (ft)	188	120	100	27	77	42	28	18	58	72	22
95th Queue (ft)	300	229	168	61	129	107	120	51	103	117	59
Link Distance (ft)	774	774				771	771			1043	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	300	300			300	300		300
Storage Blk Time (%)		0									
Queuing Penalty (veh)		0									

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	T	T	R	L	L	R
Maximum Queue (ft)	167	222	145	129	265	228	166	189	216	110
Average Queue (ft)	81	116	35	41	147	118	99	57	96	43
95th Queue (ft)	142	191	82	90	241	201	157	136	179	86
Link Distance (ft)			771	771	850	850			998	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300	300					300	300		300
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	130	315	272	59	186	265	302	54	274	127	184	84
Average Queue (ft)	40	146	110	6	97	115	150	8	172	55	50	18
95th Queue (ft)	101	255	211	26	162	202	248	33	258	110	124	56
Link Distance (ft)		850	850			2586	2586			1732		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			250	250			250	250		250	250
Storage Blk Time (%)		1	0			1	1		2			
Queuing Penalty (veh)		0	0			1	0		4			

Intersection: 5: Cedar Avenue & North Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	64	64
Average Queue (ft)	19	23
95th Queue (ft)	52	53
Link Distance (ft)	1294	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	370	1189	270	176	291	94	365	805	682	68	267	362
Average Queue (ft)	228	255	94	54	174	43	348	478	207	27	153	189
95th Queue (ft)	393	607	193	116	277	85	430	811	474	57	243	299
Link Distance (ft)		2528			4573			5286	5286		5279	5279
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250		150	250		250	245			150		
Storage Blk Time (%)	26	6	1		2		81	0			12	
Queuing Penalty (veh)	142	28	5		3		244	0			5	

Intersection: 8: Cedar Avenue & Parkway Drive

Movement	SE	SE
Directions Served	L	R
Maximum Queue (ft)	33	49
Average Queue (ft)	6	13
95th Queue (ft)	20	37
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		65
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Zone Summary

Zone wide Queuing Penalty: 785

Appendix J: Cumulative Year 2035 plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	86	627	134	54	737	591	57	31	90	194	225	339
Future Volume (vph)	86	627	134	54	737	591	57	31	90	194	225	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	0.95	1.00		0.97	0.95	1.00	1.00	1.00	0.88	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.99		1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1543	3085	1360		3018	3085	1345	1543	1624	2369	1543	3085
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1543	3085	1360		3018	3085	1345	1543	1624	2369	1543	3085
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	682	146	59	801	642	62	34	98	211	245	368
RTOR Reduction (vph)	0	0	107	0	0	0	36	0	0	179	0	0
Lane Group Flow (vph)	93	682	39	0	860	642	26	34	98	32	245	368
Confl. Peds. (#/hr)			3				3			3		
Heavy Vehicles (%)	17%	17%	17%	3%	17%	17%	17%	17%	17%	17%	17%	17%
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	9.1	27.1	27.1		25.1	43.1	43.1	3.8	15.5	15.5	14.0	25.7
Effective Green, g (s)	9.1	27.1	27.1		25.1	43.1	43.1	3.8	15.5	15.5	14.0	25.7
Actuated g/C Ratio	0.09	0.27	0.27		0.25	0.43	0.43	0.04	0.15	0.15	0.14	0.25
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	138	824	363		747	1311	571	57	248	362	213	781
v/s Ratio Prot	0.06	c0.22			c0.28	0.21		0.02	0.06		c0.16	c0.12
v/s Ratio Perm			0.03				0.02			0.01		
v/c Ratio	0.67	0.83	0.11		1.15	0.49	0.05	0.60	0.40	0.09	1.15	0.47
Uniform Delay, d1	44.7	35.0	28.0		38.2	21.2	17.1	48.0	38.7	36.9	43.7	32.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.2	6.9	0.1		83.1	0.3	0.0	15.6	1.0	0.1	108.1	0.5
Delay (s)	57.0	41.8	28.2		121.2	21.5	17.1	63.7	39.8	37.0	151.8	32.5
Level of Service	E	D	C		F	C	B	E	D	D	F	C
Approach Delay (s)		41.2				76.2			40.4			68.7
Approach LOS		D				E			D			E

Intersection Summary			
HCM 2000 Control Delay	62.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	101.4	Sum of lost time (s)	19.7
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	165
Future Volume (vph)	165
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1359
Flt Permitted	1.00
Satd. Flow (perm)	1359
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	179
RTOR Reduction (vph)	134
Lane Group Flow (vph)	45
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	17%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	25.7
Effective Green, g (s)	25.7
Actuated g/C Ratio	0.25
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	344
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.13
Uniform Delay, d1	29.2
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	29.4
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1100	1349	263	0	90
Future Vol, veh/h	0	1100	1349	263	0	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	17	3	0	3
Mvmt Flow	0	1196	1466	286	0	98

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	876
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	-	0	290
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	290
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.6
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	290
HCM Lane V/C Ratio	-	-	-	0.337
HCM Control Delay (s)	-	-	-	23.6
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	646	454	121	864	0	0	0	0	265	0	748
Future Volume (veh/h)	0	646	454	121	864	0	0	0	0	265	0	748
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1496	1496	1496	1496	0				1496	0	1496
Adj Flow Rate, veh/h	0	702	493	132	939	0				288	0	813
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	27	27	27	27	0				27	0	27
Cap, veh/h	0	924	413	452	1640	0				1004	0	813
Arrive On Green	0.00	0.32	0.32	0.33	1.00	0.00				0.36	0.00	0.36
Sat Flow, veh/h	0	2917	1272	2764	2917	0				2764	0	2238
Grp Volume(v), veh/h	0	702	493	132	939	0				288	0	813
Grp Sat Flow(s),veh/h/ln	0	1421	1272	1382	1421	0				1382	0	1119
Q Serve(g_s), s	0.0	13.3	19.5	2.1	0.0	0.0				4.4	0.0	21.8
Cycle Q Clear(g_c), s	0.0	13.3	19.5	2.1	0.0	0.0				4.4	0.0	21.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	924	413	452	1640	0				1004	0	813
V/C Ratio(X)	0.00	0.76	1.19	0.29	0.57	0.00				0.29	0.00	1.00
Avail Cap(c_a), veh/h	0	924	413	452	1640	0				1004	0	813
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.72	0.72	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	18.2	20.2	17.6	0.0	0.0				13.6	0.0	19.1
Incr Delay (d2), s/veh	0.0	5.8	108.4	0.3	1.0	0.0				0.2	0.0	31.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	19.2	0.8	0.2	0.0				1.7	0.0	10.2
LnGrp Delay(d),s/veh	0.0	24.0	128.6	17.9	1.0	0.0				13.7	0.0	50.6
LnGrp LOS		C	F	B	A					B		D
Approach Vol, veh/h		1195			1071						1101	
Approach Delay, s/veh		67.2			3.1						41.0	
Approach LOS		E			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			15.2	24.8		26.0		40.0
Change Period (Y+Rc), s			5.3	* 5.3		4.2		5.3
Max Green Setting (Gmax), s			5.0	* 20		21.8		28.7
Max Q Clear Time (g_c+I1), s			4.1	21.5		23.8		2.0
Green Ext Time (p_c), s			0.1	0.0		0.0		7.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰↰	↑↑			↑↑	↱	↰↰		↱			
Traffic Volume (veh/h)	279	632	0	0	736	108	249	0	69	0	0	0
Future Volume (veh/h)	279	632	0	0	736	108	249	0	69	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1439	1439	0	0	1439	1439	1439	0	1439			
Adj Flow Rate, veh/h	297	672	0	0	783	115	265	0	73			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	32	32	0	0	32	32	32	0	32			
Cap, veh/h	719	1938	0	0	957	426	354	0	163			
Arrive On Green	0.54	1.00	0.00	0.00	0.35	0.35	0.13	0.00	0.13			
Sat Flow, veh/h	2659	2807	0	0	2807	1218	2659	0	1223			
Grp Volume(v), veh/h	297	672	0	0	783	115	265	0	73			
Grp Sat Flow(s),veh/h/ln	1330	1367	0	0	1367	1218	1330	0	1223			
Q Serve(g_s), s	4.0	0.0	0.0	0.0	15.6	4.1	5.8	0.0	3.3			
Cycle Q Clear(g_c), s	4.0	0.0	0.0	0.0	15.6	4.1	5.8	0.0	3.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	719	1938	0	0	957	426	354	0	163			
V/C Ratio(X)	0.41	0.35	0.00	0.00	0.82	0.27	0.75	0.00	0.45			
Avail Cap(c_a), veh/h	719	1938	0	0	1171	522	434	0	200			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	0.70	0.70	1.00	0.00	1.00			
Uniform Delay (d), s/veh	11.0	0.0	0.0	0.0	17.8	14.0	25.0	0.0	24.0			
Incr Delay (d2), s/veh	0.3	0.4	0.0	0.0	5.5	1.1	5.6	0.0	1.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.4	0.1	0.0	0.0	6.6	1.5	2.4	0.0	1.2			
LnGrp Delay(d),s/veh	11.3	0.4	0.0	0.0	23.3	15.1	30.7	0.0	25.9			
LnGrp LOS	B	A			C	B	C		C			
Approach Vol, veh/h		969			898			338				
Approach Delay, s/veh		3.7			22.2			29.6				
Approach LOS		A			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		12.2		47.8			21.5	26.3
Change Period (Y+Rc), s		* 4.2		5.3			5.3	* 5.3
Max Green Setting (Gmax), s		* 9.8		40.7			10.8	* 26
Max Q Clear Time (g_c+I1), s		7.8		2.0			6.0	17.6
Green Ext Time (p_c), s		0.3		6.2			2.3	3.4

Intersection Summary		
HCM 2010 Ctrl Delay		15.2
HCM 2010 LOS		B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	533	78	71	735	68	79	39	80	9	35	30
Future Volume (veh/h)	90	533	78	71	735	68	79	39	80	9	35	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
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		0.99	1.00		0.99
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
Adj Sat Flow, veh/h/ln	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439	1439
Adj Flow Rate, veh/h	98	579	85	77	799	74	86	42	87	10	38	33
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	32	32	32	32	32	32	32	32	32	32	32	32
Cap, veh/h	129	1159	517	88	1023	456	99	242	204	18	156	131
Arrive On Green	0.09	0.42	0.42	0.06	0.37	0.37	0.07	0.17	0.17	0.01	0.11	0.11
Sat Flow, veh/h	1371	2735	1219	1371	2735	1219	1371	1439	1217	1371	1439	1213
Grp Volume(v), veh/h	98	579	85	77	799	74	86	42	87	10	38	33
Grp Sat Flow(s),veh/h/ln	1371	1367	1219	1371	1367	1219	1371	1439	1217	1371	1439	1213
Q Serve(g_s), s	3.9	8.7	2.4	3.1	14.5	1.6	3.5	1.4	3.6	0.4	1.4	1.0
Cycle Q Clear(g_c), s	3.9	8.7	2.4	3.1	14.5	1.6	3.5	1.4	3.6	0.4	1.4	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	1159	517	88	1023	456	99	242	204	18	156	131
V/C Ratio(X)	0.76	0.50	0.16	0.88	0.78	0.16	0.87	0.17	0.43	0.57	0.24	0.25
Avail Cap(c_a), veh/h	191	1511	674	156	1443	643	171	872	737	122	821	692
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.8	11.8	10.0	26.0	15.5	5.9	25.8	20.0	20.9	27.5	22.9	10.9
Incr Delay (d2), s/veh	9.7	0.3	0.1	22.5	1.9	0.2	19.5	0.3	1.4	25.6	0.8	1.0
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	1.8	3.3	0.8	1.7	5.7	0.7	1.9	0.6	1.3	0.3	0.6	0.5
LnGrp Delay(d),s/veh	34.4	12.2	10.2	48.5	17.4	6.0	45.3	20.3	22.3	53.1	23.7	11.9
LnGrp LOS	C	B	B	D	B	A	D	C	C	D	C	B
Approach Vol, veh/h		762			950			215			81	
Approach Delay, s/veh		14.8			19.0			31.1			22.5	
Approach LOS		B			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	14.3	7.8	29.1	8.3	11.0	10.6	26.3
Change Period (Y+Rc), s	* 4.2	4.9	* 4.2	5.3	* 4.2	4.9	5.3	* 5.3
Max Green Setting (Gmax), s	* 5	34.0	* 6.4	31.0	* 7	32.0	7.8	* 30
Max Q Clear Time (g_c+I1), s	2.4	5.6	5.1	10.7	5.5	3.4	5.9	16.5
Green Ext Time (p_c), s	0.0	0.7	0.0	4.2	0.0	0.7	0.8	4.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	314	163	66	219	52	200	368	44	96	413	235
Future Volume (veh/h)	270	314	163	66	219	52	200	368	44	96	413	235
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	293	341	177	72	238	57	217	400	48	104	449	255
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	282	281	146	157	494	113	179	727	87	95	395	223
Arrive On Green	0.57	0.57	0.57	0.57	0.57	0.57	0.11	0.24	0.24	0.06	0.19	0.19
Sat Flow, veh/h	422	491	255	212	863	198	1675	3008	359	1675	2062	1163
Grp Volume(v), veh/h	811	0	0	367	0	0	217	221	227	104	363	341
Grp Sat Flow(s),veh/h/ln	1167	0	0	1272	0	0	1675	1671	1696	1675	1671	1554
Q Serve(g_s), s	50.4	0.0	0.0	0.0	0.0	0.0	12.8	13.9	14.0	6.8	23.0	23.0
Cycle Q Clear(g_c), s	68.7	0.0	0.0	18.3	0.0	0.0	12.8	13.9	14.0	6.8	23.0	23.0
Prop In Lane	0.36		0.22	0.20		0.16	1.00		0.21	1.00		0.75
Lane Grp Cap(c), veh/h	709	0	0	764	0	0	179	404	410	95	320	298
V/C Ratio(X)	1.14	0.00	0.00	0.48	0.00	0.00	1.21	0.55	0.55	1.10	1.13	1.14
Avail Cap(c_a), veh/h	709	0	0	764	0	0	179	408	414	95	320	298
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.7	0.0	0.0	14.5	0.0	0.0	53.6	39.8	39.8	56.6	48.5	48.5
Incr Delay (d2), s/veh	81.0	0.0	0.0	0.5	0.0	0.0	136.7	1.5	1.6	120.5	91.6	96.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	39.4	0.0	0.0	7.1	0.0	0.0	12.7	6.6	6.7	6.3	18.7	17.9
LnGrp Delay(d),s/veh	110.7	0.0	0.0	15.0	0.0	0.0	190.3	41.3	41.4	177.1	140.1	145.4
LnGrp LOS	F			B			F	D	D	F	F	F
Approach Vol, veh/h		811			367			665			808	
Approach Delay, s/veh		110.7			15.0			89.9			147.1	
Approach LOS		F			B			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	35.0		74.0	17.0	29.0		74.0
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 6.8	* 29		68.7	* 13	23.0		68.7
Max Q Clear Time (g_c+I1), s	8.8	16.0		70.7	14.8	25.0		20.3
Green Ext Time (p_c), s	0.0	5.2		0.0	0.0	0.0		11.6

Intersection Summary	
HCM 2010 Ctrl Delay	103.3
HCM 2010 LOS	F

Notes

Intersection	
Int Delay, s/veh	5.4

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	18	147	159	24	51	201
Future Vol, veh/h	18	147	159	24	51	201
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	-	-	-	50	0	65
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	50	50	50
Mvmt Flow	20	160	173	26	55	218

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	173	0	-	0	372	173
Stage 1	-	-	-	-	173	-
Stage 2	-	-	-	-	199	-
Critical Hdwy	4.6	-	-	-	6.9	6.7
Critical Hdwy Stg 1	-	-	-	-	5.9	-
Critical Hdwy Stg 2	-	-	-	-	5.9	-
Follow-up Hdwy	2.65	-	-	-	3.95	3.75
Pot Cap-1 Maneuver	1160	-	-	0	544	760
Stage 1	-	-	-	0	754	-
Stage 2	-	-	-	0	732	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1160	-	-	-	534	760
Mov Cap-2 Maneuver	-	-	-	-	534	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	718	-

Approach	NB	SB	SE
HCM Control Delay, s	0.9	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SELn2	SBT
Capacity (veh/h)	1160	-	534	760	-
HCM Lane V/C Ratio	0.017	-	0.104	0.287	-
HCM Control Delay (s)	8.2	0	12.5	11.6	-
HCM Lane LOS	A	A	B	B	-
HCM 95th %tile Q(veh)	0.1	-	0.3	1.2	-

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	174	712	104	46	247	770	29	144	380	778	217	111
Future Volume (vph)	174	712	104	46	247	770	29	144	380	778	217	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Lane Util. Factor	1.00	0.95	1.00		0.97	0.95	1.00	1.00	1.00	0.88	1.00	0.95
Frpb, ped/bikes	1.00	1.00	0.98		1.00	1.00	0.97	1.00	1.00	0.97	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	3112	1371		3073	3112	1356	1556	1638	2387	1556	3112
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1556	3112	1371		3073	3112	1356	1556	1638	2387	1556	3112
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	189	774	113	50	268	837	32	157	413	846	236	121
RTOR Reduction (vph)	0	0	80	0	0	0	23	0	0	225	0	0
Lane Group Flow (vph)	189	774	33	0	318	837	9	157	413	621	236	121
Confl. Peds. (#/hr)			3				3			3		
Heavy Vehicles (%)	16%	16%	16%	3%	16%	16%	16%	16%	16%	16%	16%	16%
Turn Type	Prot	NA	Perm	Prot	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4		3	3	8		5	2		1	6
Permitted Phases			4				8			2		
Actuated Green, G (s)	14.8	34.7	34.7		15.0	34.9	34.9	16.7	31.8	31.8	18.8	33.9
Effective Green, g (s)	14.8	34.7	34.7		15.0	34.9	34.9	16.7	31.8	31.8	18.8	33.9
Actuated g/C Ratio	0.12	0.29	0.29		0.12	0.29	0.29	0.14	0.27	0.27	0.16	0.28
Clearance Time (s)	4.2	5.3	5.3		4.2	5.3	5.3	4.2	6.0	6.0	4.2	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	191	899	396		384	905	394	216	434	632	243	879
v/s Ratio Prot	c0.12	0.25			0.10	c0.27		0.10	0.25		c0.15	0.04
v/s Ratio Perm			0.02				0.01			c0.26		
v/c Ratio	0.99	0.86	0.08		0.83	0.92	0.02	0.73	0.95	0.98	0.97	0.14
Uniform Delay, d1	52.5	40.4	31.1		51.2	41.3	30.4	49.5	43.3	43.8	50.3	32.1
Progression Factor	1.00	1.00	1.00		0.86	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	61.4	10.6	0.4		12.7	15.5	0.1	11.5	31.0	31.2	49.4	0.1
Delay (s)	113.9	51.0	31.5		56.8	49.4	30.5	61.0	74.3	75.1	99.7	32.2
Level of Service	F	D	C		E	D	C	E	E	E	F	C
Approach Delay (s)		60.0				50.9			73.3			64.3
Approach LOS		E				D			E			E

Intersection Summary			
HCM 2000 Control Delay	62.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.7
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	127
Future Volume (vph)	127
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1370
Flt Permitted	1.00
Satd. Flow (perm)	1370
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	138
RTOR Reduction (vph)	99
Lane Group Flow (vph)	39
Confl. Peds. (#/hr)	3
Heavy Vehicles (%)	16%
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	33.9
Effective Green, g (s)	33.9
Actuated g/C Ratio	0.28
Clearance Time (s)	6.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	387
v/s Ratio Prot	
v/s Ratio Perm	0.03
v/c Ratio	0.10
Uniform Delay, d1	31.8
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	31.9
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1753	1002	209	0	90
Future Vol, veh/h	0	1753	1002	209	0	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	17	17	3	0	3
Mvmt Flow	0	1905	1089	227	0	98

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	658
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.33
Pot Cap-1 Maneuver	0	-	-	-	0	404
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	404
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	404
HCM Lane V/C Ratio	-	-	-	0.242
HCM Control Delay (s)	-	-	-	16.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1291	462	153	878	0	0	0	0	129	0	333
Future Volume (veh/h)	0	1291	462	153	878	0	0	0	0	129	0	333
Number	7	4	14	3	8	18				1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1557	1557	1557	1557	0				1557	0	1557
Adj Flow Rate, veh/h	0	1373	491	163	934	0				137	0	354
Adj No. of Lanes	0	2	1	2	2	0				2	0	2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	22	22	22	22	0				22	0	22
Cap, veh/h	0	1573	704	264	2106	0				374	0	303
Arrive On Green	0.00	0.36	0.36	0.18	1.00	0.00				0.13	0.00	0.13
Sat Flow, veh/h	0	3037	1324	2877	3037	0				2877	0	2330
Grp Volume(v), veh/h	0	1373	491	163	934	0				137	0	354
Grp Sat Flow(s),veh/h/ln	0	1480	1324	1439	1480	0				1439	0	1165
Q Serve(g_s), s	0.0	26.0	19.1	3.1	0.0	0.0				2.6	0.0	7.8
Cycle Q Clear(g_c), s	0.0	26.0	19.1	3.1	0.0	0.0				2.6	0.0	7.8
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1573	704	264	2106	0				374	0	303
V/C Ratio(X)	0.00	0.87	0.70	0.62	0.44	0.00				0.37	0.00	1.17
Avail Cap(c_a), veh/h	0	1623	726	269	2106	0				374	0	303
HCM Platoon Ratio	1.00	0.67	0.67	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.55	0.55	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.4	15.2	23.5	0.0	0.0				23.8	0.0	26.1
Incr Delay (d2), s/veh	0.0	7.0	5.7	2.3	0.4	0.0				0.6	0.0	105.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.1	8.0	1.3	0.1	0.0				1.1	0.0	6.9
LnGrp Delay(d),s/veh	0.0	24.4	20.9	25.8	0.4	0.0				24.4	0.0	131.7
LnGrp LOS		C	C	C	A					C		F
Approach Vol, veh/h		1864			1097						491	
Approach Delay, s/veh		23.5			4.1						101.7	
Approach LOS		C			A						F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs			3	4		6		8
Phs Duration (G+Y+Rc), s			10.8	37.2		12.0		48.0
Change Period (Y+Rc), s			5.3	* 5.3		4.2		5.3
Max Green Setting (Gmax), s			5.6	* 33		7.8		42.7
Max Q Clear Time (g_c+I1), s			5.1	28.0		9.8		2.0
Green Ext Time (p_c), s			0.3	3.9		0.0		8.2

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	737	683	0	0	719	403	312	0	104	0	0	0
Future Volume (veh/h)	737	683	0	0	719	403	312	0	104	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1652	1652	0	0	1652	1652	1652	0	1652			
Adj Flow Rate, veh/h	801	742	0	0	782	438	339	0	113			
Adj No. of Lanes	2	2	0	0	2	1	2	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	15	15	0	0	15	15	15	0	15			
Cap, veh/h	916	2197	0	0	978	436	433	0	199			
Arrive On Green	0.50	1.00	0.00	0.00	0.62	0.62	0.14	0.00	0.14			
Sat Flow, veh/h	3053	3222	0	0	3222	1398	3053	0	1404			
Grp Volume(v), veh/h	801	742	0	0	782	438	339	0	113			
Grp Sat Flow(s),veh/h/ln	1526	1570	0	0	1570	1398	1526	0	1404			
Q Serve(g_s), s	14.0	0.0	0.0	0.0	11.2	18.7	6.4	0.0	4.5			
Cycle Q Clear(g_c), s	14.0	0.0	0.0	0.0	11.2	18.7	6.4	0.0	4.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	916	2197	0	0	978	436	433	0	199			
V/C Ratio(X)	0.87	0.34	0.00	0.00	0.80	1.01	0.78	0.00	0.57			
Avail Cap(c_a), veh/h	956	2197	0	0	978	436	448	0	206			
HCM Platoon Ratio	1.67	1.67	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.47	0.47	0.00	0.00	0.75	0.75	1.00	0.00	1.00			
Uniform Delay (d), s/veh	14.0	0.0	0.0	0.0	9.9	11.3	24.9	0.0	24.0			
Incr Delay (d2), s/veh	4.4	0.2	0.0	0.0	5.2	38.6	8.6	0.0	3.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	6.3	0.1	0.0	0.0	5.3	11.4	3.2	0.0	1.9			
LnGrp Delay(d),s/veh	18.4	0.2	0.0	0.0	15.1	49.9	33.4	0.0	27.5			
LnGrp LOS	B	A			B	F	C		C			
Approach Vol, veh/h		1543			1220			452				
Approach Delay, s/veh		9.6			27.6			31.9				
Approach LOS		A			C			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4			7	8
Phs Duration (G+Y+Rc), s		12.7		47.3			23.3	24.0
Change Period (Y+Rc), s		* 4.2		5.3			5.3	* 5.3
Max Green Setting (Gmax), s		* 8.8		41.7			18.8	* 19
Max Q Clear Time (g_c+I1), s		8.4		2.0			16.0	20.7
Green Ext Time (p_c), s		0.1		9.9			1.8	0.0

Intersection Summary		
HCM 2010 Ctrl Delay		19.6
HCM 2010 LOS		B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	739	12	95	874	18	203	66	136	13	17	45
Future Volume (veh/h)	36	739	12	95	874	18	203	66	136	13	17	45
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		0.99
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
Adj Sat Flow, veh/h/ln	1557	1557	1557	1557	1557	1557	1557	1557	1557	1557	1557	1557
Adj Flow Rate, veh/h	39	803	13	103	950	20	221	72	148	14	18	49
Adj No. of Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	22	22	22	22	22	22	22	22	22	22	22	22
Cap, veh/h	46	853	380	454	1693	756	244	352	298	23	111	93
Arrive On Green	0.06	0.58	0.58	0.31	0.57	0.57	0.16	0.23	0.23	0.02	0.07	0.07
Sat Flow, veh/h	1483	2959	1317	1483	2959	1320	1483	1557	1319	1483	1557	1307
Grp Volume(v), veh/h	39	803	13	103	950	20	221	72	148	14	18	49
Grp Sat Flow(s),veh/h/ln	1483	1480	1317	1483	1480	1320	1483	1557	1319	1483	1557	1307
Q Serve(g_s), s	3.1	30.1	0.5	6.2	24.3	0.8	17.6	4.5	5.8	1.1	1.3	3.8
Cycle Q Clear(g_c), s	3.1	30.1	0.5	6.2	24.3	0.8	17.6	4.5	5.8	1.1	1.3	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	46	853	380	454	1693	756	244	352	298	23	111	93
V/C Ratio(X)	0.85	0.94	0.03	0.23	0.56	0.03	0.90	0.20	0.50	0.61	0.16	0.53
Avail Cap(c_a), veh/h	62	932	415	454	1693	756	257	620	525	62	415	349
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.0	24.5	18.2	31.1	16.2	11.1	49.2	37.7	9.9	58.7	52.4	42.1
Incr Delay (d2), s/veh	49.9	18.7	0.2	0.3	1.3	0.1	31.5	0.3	1.3	23.1	0.7	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	14.3	0.2	2.6	10.2	0.3	9.3	2.0	2.2	0.6	0.6	1.5
LnGrp Delay(d),s/veh	105.9	43.1	18.3	31.3	17.5	11.2	80.7	38.0	11.2	81.8	53.0	46.7
LnGrp LOS	F	D	B	C	B	B	F	D	B	F	D	D
Approach Vol, veh/h		855			1073			441			81	
Approach Delay, s/veh		45.6			18.7			50.4			54.2	
Approach LOS		D			B			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.1	32.0	42.0	39.9	24.7	13.4	7.9	74.0
Change Period (Y+Rc), s	* 4.2	4.9	5.3	* 5.3	4.9	* 4.9	* 4.2	5.3
Max Green Setting (Gmax), s	* 5	47.8	10.8	* 38	20.8	* 32	* 5	43.6
Max Q Clear Time (g_c+I1), s	3.1	7.8	8.2	32.1	19.6	5.8	5.1	26.3
Green Ext Time (p_c), s	0.0	1.5	1.6	2.5	0.2	0.2	0.0	6.3

Intersection Summary	
HCM 2010 Ctrl Delay	35.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	261	301	52	313	87	289	601	51	42	480	244
Future Volume (veh/h)	199	261	301	52	313	87	289	601	51	42	480	244
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1900	1652	1900	1900	1652	1900	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	207	272	314	54	326	91	301	626	53	44	500	254
Adj No. of Lanes	0	1	0	0	1	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	182	202	227	92	514	137	221	958	81	55	448	227
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.13	0.31	0.31	0.03	0.21	0.21
Sat Flow, veh/h	272	380	428	110	968	258	1675	3120	264	1675	2151	1088
Grp Volume(v), veh/h	793	0	0	471	0	0	301	335	344	44	388	366
Grp Sat Flow(s),veh/h/ln	1081	0	0	1336	0	0	1675	1671	1713	1675	1671	1567
Q Serve(g_s), s	36.5	0.0	0.0	0.0	0.0	0.0	15.8	20.8	20.9	3.1	25.0	25.0
Cycle Q Clear(g_c), s	63.7	0.0	0.0	27.2	0.0	0.0	15.8	20.8	20.9	3.1	25.0	25.0
Prop In Lane	0.26		0.40	0.11		0.19	1.00		0.15	1.00		0.69
Lane Grp Cap(c), veh/h	611	0	0	743	0	0	221	513	526	55	348	327
V/C Ratio(X)	1.30	0.00	0.00	0.63	0.00	0.00	1.36	0.65	0.65	0.80	1.11	1.12
Avail Cap(c_a), veh/h	611	0	0	743	0	0	221	513	526	67	348	327
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	0.0	0.0	19.0	0.0	0.0	52.1	36.0	36.0	57.6	47.5	47.5
Incr Delay (d2), s/veh	145.5	0.0	0.0	1.8	0.0	0.0	190.3	2.9	2.9	41.1	82.8	86.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	44.9	0.0	0.0	11.1	0.0	0.0	19.0	10.0	10.3	2.1	19.5	18.6
LnGrp Delay(d),s/veh	178.2	0.0	0.0	20.8	0.0	0.0	242.4	39.0	39.0	98.7	130.3	134.0
LnGrp LOS	F			C			F	D	D	F	F	F
Approach Vol, veh/h		793			471			980			798	
Approach Delay, s/veh		178.2			20.8			101.5			130.3	
Approach LOS		F			C			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	42.9		69.0	20.0	31.0		69.0
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3
Max Green Setting (Gmax), s	* 4.8	* 36		63.7	* 16	25.0		63.7
Max Q Clear Time (g_c+I1), s	5.1	22.9		65.7	17.8	27.0		29.2
Green Ext Time (p_c), s	0.0	6.5		0.0	0.0	0.0		11.8

Intersection Summary	
HCM 2010 Ctrl Delay	116.5
HCM 2010 LOS	F

Notes

Intersection						
Int Delay, s/veh	2.2					

Movement	NBL	NBT	SBT	SBR	SEL	SER
Lane Configurations						
Traffic Vol, veh/h	21	380	108	16	25	95
Future Vol, veh/h	21	380	108	16	25	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	Free	-	Stop
Storage Length	-	-	-	50	0	65
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	22	22	22	22	22	22
Mvmt Flow	22	404	115	17	27	101

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	115	0	-	0	564	115
Stage 1	-	-	-	-	115	-
Stage 2	-	-	-	-	449	-
Critical Hdwy	4.32	-	-	-	6.62	6.42
Critical Hdwy Stg 1	-	-	-	-	5.62	-
Critical Hdwy Stg 2	-	-	-	-	5.62	-
Follow-up Hdwy	2.398	-	-	-	3.698	3.498
Pot Cap-1 Maneuver	1358	-	-	0	455	886
Stage 1	-	-	-	0	863	-
Stage 2	-	-	-	0	603	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	1358	-	-	-	445	886
Mov Cap-2 Maneuver	-	-	-	-	445	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	590	-

Approach	NB	SB	SE
HCM Control Delay, s	0.4	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	NBL	NBT	SELn1	SELn2	SBT
Capacity (veh/h)	1358	-	445	886	-
HCM Lane V/C Ratio	0.016	-	0.06	0.114	-
HCM Control Delay (s)	7.7	0	13.6	9.6	-
HCM Lane LOS	A	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	0.2	0.4	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	314	163	66	219	52	200	368	44	96	413	235
Future Volume (veh/h)	270	314	163	66	219	52	200	368	44	96	413	235
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1652	1652	1652	1652	1652	1652	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	293	341	177	72	238	57	217	400	48	104	449	255
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	412	706	599	312	706	599	151	916	109	106	573	323
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.09	0.30	0.30	0.06	0.28	0.28
Sat Flow, veh/h	957	1652	1402	780	1652	1402	1675	3008	359	1675	2062	1163
Grp Volume(v), veh/h	293	341	177	72	238	57	217	221	227	104	363	341
Grp Sat Flow(s),veh/h/ln	957	1652	1402	780	1652	1402	1675	1671	1696	1675	1671	1554
Q Serve(g_s), s	22.3	11.3	6.3	5.6	7.3	1.8	6.8	8.0	8.1	4.7	15.2	15.3
Cycle Q Clear(g_c), s	29.6	11.3	6.3	16.8	7.3	1.8	6.8	8.0	8.1	4.7	15.2	15.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.75
Lane Grp Cap(c), veh/h	412	706	599	312	706	599	151	509	516	106	465	432
V/C Ratio(X)	0.71	0.48	0.30	0.23	0.34	0.10	1.44	0.43	0.44	0.98	0.78	0.79
Avail Cap(c_a), veh/h	416	714	606	316	714	606	151	603	612	106	552	513
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.4	15.6	14.2	21.7	14.5	12.9	34.4	21.1	21.1	35.4	25.2	25.3
Incr Delay (d2), s/veh	5.5	0.5	0.3	0.4	0.3	0.1	231.9	0.6	0.6	80.2	6.1	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	5.2	2.5	1.2	3.4	0.7	12.8	3.8	3.9	4.5	7.7	7.4
LnGrp Delay(d),s/veh	30.0	16.2	14.5	22.1	14.8	13.0	266.3	21.7	21.7	115.5	31.2	32.1
LnGrp LOS	C	B	B	C	B	B	F	C	C	F	C	C
Approach Vol, veh/h		811			367			665			808	
Approach Delay, s/veh		20.8			15.9			101.5			42.5	
Approach LOS		C			B			F			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	29.0		37.6	11.0	27.0		37.6				
Change Period (Y+Rc), s	* 4.2	* 6		5.3	* 4.2	6.0		5.3				
Max Green Setting (Gmax), s	* 4.8	* 27		32.7	* 6.8	25.0		32.7				
Max Q Clear Time (g_c+I1), s	6.7	10.1		31.6	8.8	17.3		18.8				
Green Ext Time (p_c), s	0.0	5.9		0.7	0.0	3.7		5.2				
Intersection Summary												
HCM 2010 Ctrl Delay			47.0									
HCM 2010 LOS			D									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	261	301	52	313	87	289	601	51	42	480	244
Future Volume (veh/h)	199	261	301	52	313	87	289	601	51	42	480	244
Number	7	4	14	3	8	18	5	2	12	1	6	16
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
Adj Sat Flow, veh/h/ln	1652	1652	1652	1652	1652	1652	1759	1759	1900	1759	1759	1900
Adj Flow Rate, veh/h	207	272	314	54	326	91	301	626	53	44	500	254
Adj No. of Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	15	15	15	15	15	15	8	8	8	8	8	8
Cap, veh/h	228	573	486	66	404	343	308	1204	102	55	505	255
Arrive On Green	0.14	0.35	0.35	0.04	0.24	0.24	0.18	0.39	0.39	0.03	0.23	0.23
Sat Flow, veh/h	1573	1652	1402	1573	1652	1404	1675	3120	264	1675	2151	1088
Grp Volume(v), veh/h	207	272	314	54	326	91	301	335	344	44	388	366
Grp Sat Flow(s),veh/h/ln	1573	1652	1402	1573	1652	1404	1675	1671	1713	1675	1671	1567
Q Serve(g_s), s	13.3	13.2	19.3	3.5	19.0	5.4	18.3	15.7	15.8	2.7	23.7	23.9
Cycle Q Clear(g_c), s	13.3	13.2	19.3	3.5	19.0	5.4	18.3	15.7	15.8	2.7	23.7	23.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.15	1.00		0.69
Lane Grp Cap(c), veh/h	228	573	486	66	404	343	308	645	661	55	392	368
V/C Ratio(X)	0.91	0.47	0.65	0.81	0.81	0.27	0.98	0.52	0.52	0.80	0.99	1.00
Avail Cap(c_a), veh/h	228	607	515	152	528	449	308	645	661	111	392	368
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	26.1	28.1	48.6	36.4	31.2	41.5	24.1	24.2	49.2	39.0	39.1
Incr Delay (d2), s/veh	36.1	0.6	2.6	20.4	6.9	0.4	45.0	0.7	0.7	23.2	42.6	45.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	6.1	7.7	1.9	9.5	2.1	12.3	7.4	7.6	1.6	15.5	14.9
LnGrp Delay(d),s/veh	79.2	26.7	30.7	69.0	43.3	31.6	86.6	24.9	24.9	72.3	81.6	84.7
LnGrp LOS	E	C	C	E	D	C	F	C	C	E	F	F
Approach Vol, veh/h		793			471			980			798	
Approach Delay, s/veh		42.0			44.0			43.8			82.5	
Approach LOS		D			D			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	45.5	8.5	40.8	23.0	30.0	19.0	30.3
Change Period (Y+Rc), s	* 4.2	* 6	* 4.2	5.3	* 4.2	6.0	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 36	* 9.9	37.6	* 19	24.0	* 15	32.7
Max Q Clear Time (g_c+I1), s	4.7	17.8	5.5	21.3	20.3	25.9	15.3	21.0
Green Ext Time (p_c), s	0.0	7.8	0.0	4.4	0.0	0.0	0.0	3.8

Intersection Summary	
HCM 2010 Ctrl Delay	53.5
HCM 2010 LOS	D

Notes

Intersection: 1: Orange Avenue & North Avenue/North Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	UL	L	T	T	R	L	T	R
Maximum Queue (ft)	350	388	374	145	305	308	359	311	214	48	222	109
Average Queue (ft)	87	178	202	53	285	293	308	215	25	19	78	58
95th Queue (ft)	186	288	315	109	339	350	435	355	94	43	167	106
Link Distance (ft)		2611	2611				309	309				
Upstream Blk Time (%)					2	13	26	1				
Queuing Penalty (veh)					0	0	185	9				
Storage Bay Dist (ft)	250			250	250	250			100	150		250
Storage Blk Time (%)		2	4		28	52	9	17	0		2	
Queuing Penalty (veh)		2	5		84	153	68	10	0		5	

Intersection: 1: Orange Avenue & North Avenue/North Ave

Movement	NB	SB	SB	SB	SB	B24	B24
Directions Served	R	L	T	T	R	T	T
Maximum Queue (ft)	103	175	285	235	208	192	189
Average Queue (ft)	47	149	178	123	54	21	11
95th Queue (ft)	92	209	304	213	151	103	78
Link Distance (ft)			208	208		2953	2953
Upstream Blk Time (%)			16	1	0		
Queuing Penalty (veh)			0	0	0		
Storage Bay Dist (ft)	250	100			150		
Storage Blk Time (%)		46	9	3	0		
Queuing Penalty (veh)		77	21	4	0		

Intersection: 2: North Ave & Driveway

Movement	WB	WB	SB
Directions Served	T	TR	R
Maximum Queue (ft)	442	417	220
Average Queue (ft)	230	70	170
95th Queue (ft)	496	278	264
Link Distance (ft)	417	417	205
Upstream Blk Time (%)	6	0	45
Queuing Penalty (veh)	47	1	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Ave/North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	346	266	327	73	113	346	212	201	314	783	350
Average Queue (ft)	180	122	117	15	53	130	100	30	99	246	159
95th Queue (ft)	288	227	225	51	88	280	193	92	184	464	310
Link Distance (ft)	417	417				771	771			1043	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	300	300			300	300		300
Storage Blk Time (%)			0			1			0	5	0
Queuing Penalty (veh)			1			1			2	32	0

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	T	T	R	L	L	R
Maximum Queue (ft)	150	176	161	198	390	285	71	171	172	110
Average Queue (ft)	91	116	64	79	162	139	30	64	86	38
95th Queue (ft)	159	169	125	153	298	256	64	125	146	78
Link Distance (ft)			771	771	850	850			998	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300	300					300	300		300
Storage Blk Time (%)						0				
Queuing Penalty (veh)						0				

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	133	180	185	103	145	252	280	69	155	76	125	45
Average Queue (ft)	66	87	64	33	61	143	113	18	58	18	28	7
95th Queue (ft)	127	155	137	72	120	238	220	53	126	52	69	29
Link Distance (ft)		850	850			2586	2586			1732		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			250	250			250	250		250	250
Storage Blk Time (%)						0	1					
Queuing Penalty (veh)						0	0					

Intersection: 5: Cedar Avenue & North Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	104	51
Average Queue (ft)	37	13
95th Queue (ft)	83	37
Link Distance (ft)	1294	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	292	287	114	94	172	95	365	1468	987	162	189	219
Average Queue (ft)	150	123	48	39	86	23	325	770	139	85	107	148
95th Queue (ft)	242	229	94	83	141	66	450	1594	435	151	174	219
Link Distance (ft)		2528			4573			5286	5286		5279	5279
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250		250	250		250	245			150		
Storage Blk Time (%)	1	1					80	0		4	3	
Queuing Penalty (veh)	4	2					147	0		8	3	

Intersection: 8: Cedar Avenue & Parkway Drive

Movement	NB	SE	SE
Directions Served	LT	L	R
Maximum Queue (ft)	64	74	88
Average Queue (ft)	4	24	43
95th Queue (ft)	27	56	80
Link Distance (ft)	3472		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			65
Storage Blk Time (%)		0	1
Queuing Penalty (veh)		1	1

Zone Summary

Zone wide Queuing Penalty: 873

Intersection: 1: Orange Avenue & North Avenue/North Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	T	T	R	UL	L	T	T	R	L	T	R
Maximum Queue (ft)	338	344	381	115	268	265	324	338	220	250	339	337
Average Queue (ft)	159	200	216	34	119	137	238	250	17	161	292	303
95th Queue (ft)	273	315	335	82	219	229	331	344	84	288	348	330
Link Distance (ft)		2611	2611				314	314				
Upstream Blk Time (%)							1	2				
Queuing Penalty (veh)							6	11				
Storage Bay Dist (ft)	250			250	250	250			100	150		250
Storage Blk Time (%)	2	3	3		0	1	5	40		12	45	25
Queuing Penalty (veh)	7	5	3		0	5	15	11		134	411	133

Intersection: 1: Orange Avenue & North Avenue/North Ave

Movement	NB	SB	SB	SB	SB	B24
Directions Served	R	L	T	T	R	T
Maximum Queue (ft)	309	174	291	208	119	56
Average Queue (ft)	258	133	124	59	43	4
95th Queue (ft)	358	203	274	160	98	26
Link Distance (ft)			208	208		2953
Upstream Blk Time (%)			5	0		
Queuing Penalty (veh)			0	0		
Storage Bay Dist (ft)	250	100			150	
Storage Blk Time (%)	2	35	0	0		
Queuing Penalty (veh)	10	19	0	0		

Intersection: 2: North Ave & Driveway

Movement	EB	WB	WB	SB
Directions Served	T	T	TR	R
Maximum Queue (ft)	83	184	116	118
Average Queue (ft)	3	14	13	42
95th Queue (ft)	27	82	65	81
Link Distance (ft)	314	411	411	206
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Ave/North Avenue

Movement	EB	EB	EB	WB	WB	WB	WB	SB	SB	SB	SB
Directions Served	T	T	R	L	L	T	T	L	L	R	R
Maximum Queue (ft)	318	260	181	134	148	192	153	124	139	270	243
Average Queue (ft)	186	121	81	23	66	62	53	17	63	118	61
95th Queue (ft)	289	225	144	75	118	162	135	63	124	199	144
Link Distance (ft)	411	411				771	771			1043	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)			300	300	300			300	300		300
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 4: North Avenue & SR 99 NB On-Ramp

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	T	T	R	L	L	R
Maximum Queue (ft)	224	234	99	136	280	261	258	148	174	111
Average Queue (ft)	109	142	37	44	156	127	93	57	110	42
95th Queue (ft)	190	222	84	101	250	202	185	124	167	84
Link Distance (ft)			771	771	850	850			998	
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	300	300					300	300		300
Storage Blk Time (%)										
Queuing Penalty (veh)										

Intersection: 5: Cedar Avenue & North Ave

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	T	T	R	L	T	T	R	L	T	R	L
Maximum Queue (ft)	85	458	413	22	192	265	347	37	368	515	164	66
Average Queue (ft)	30	196	175	5	96	147	172	3	179	85	55	13
95th Queue (ft)	68	359	313	19	161	249	301	17	337	298	118	41
Link Distance (ft)		850	850			2586	2586			1732		
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250			250	250			250	250		250	250
Storage Blk Time (%)		4	3			0	2		5	0		
Queuing Penalty (veh)		2	0			0	0		10	0		

Intersection: 5: Cedar Avenue & North Ave

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	112	145
Average Queue (ft)	14	30
95th Queue (ft)	54	80
Link Distance (ft)	1294	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Chestnut Ave & North Ave

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	364	407	370	110	360	364	364	387	253	130	332	340
Average Queue (ft)	209	163	103	55	197	62	224	152	157	46	195	234
95th Queue (ft)	343	338	244	107	306	197	322	275	241	95	285	326
Link Distance (ft)		2528			4573			5286	5286		5279	5279
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	250		250	250		250	245			150		
Storage Blk Time (%)	10	1	0		3		11	0		0	23	
Queuing Penalty (veh)	55	4	0		4		34	1		0	10	

Intersection: 8: Cedar Avenue & Parkway Drive

Movement	SE	SE
Directions Served	L	R
Maximum Queue (ft)	50	33
Average Queue (ft)	6	7
95th Queue (ft)	23	23
Link Distance (ft)		
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		65
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Zone Summary

Zone wide Queuing Penalty: 891

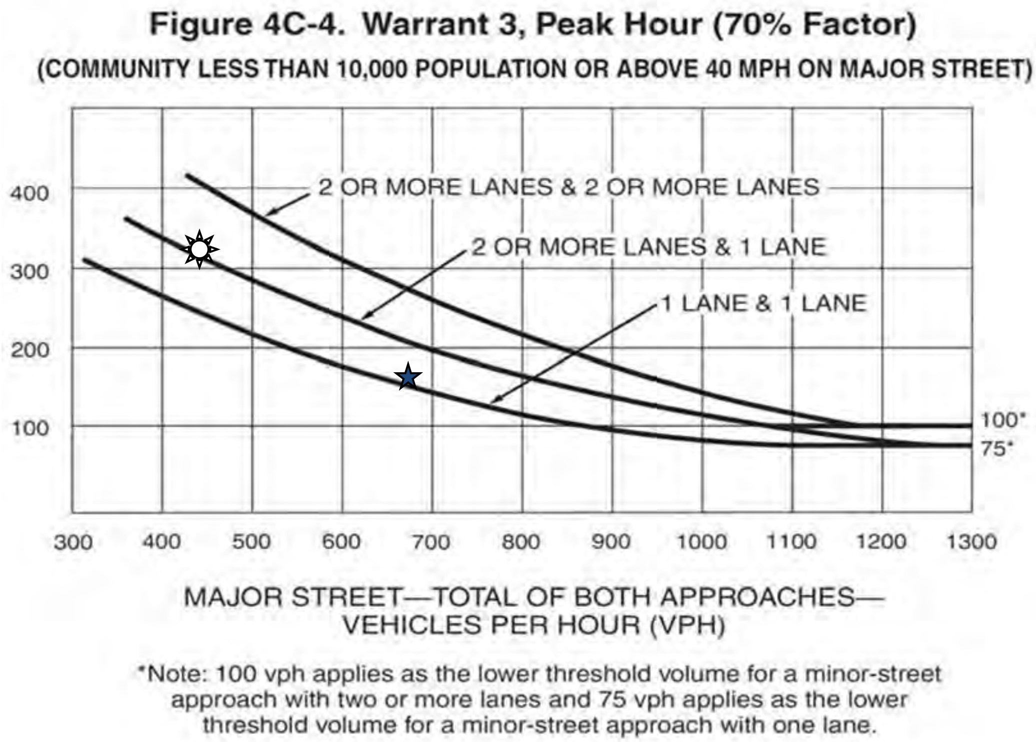
Appendix K: Signal Warrants

<u>**Peak Hour Warrant (Rural Areas)**</u>

Existing - AM (PM) Peak Hour

Intersection: 3. North Avenue and State Route 99 SB Off-Ramp

State Route 99 SB Off-Ramp Highest Approach Volume = 324 (202) VPH



North Avenue Total Volume = 450 (680) VPH

AM Peak Hour Volume – Signal Warrant is Met

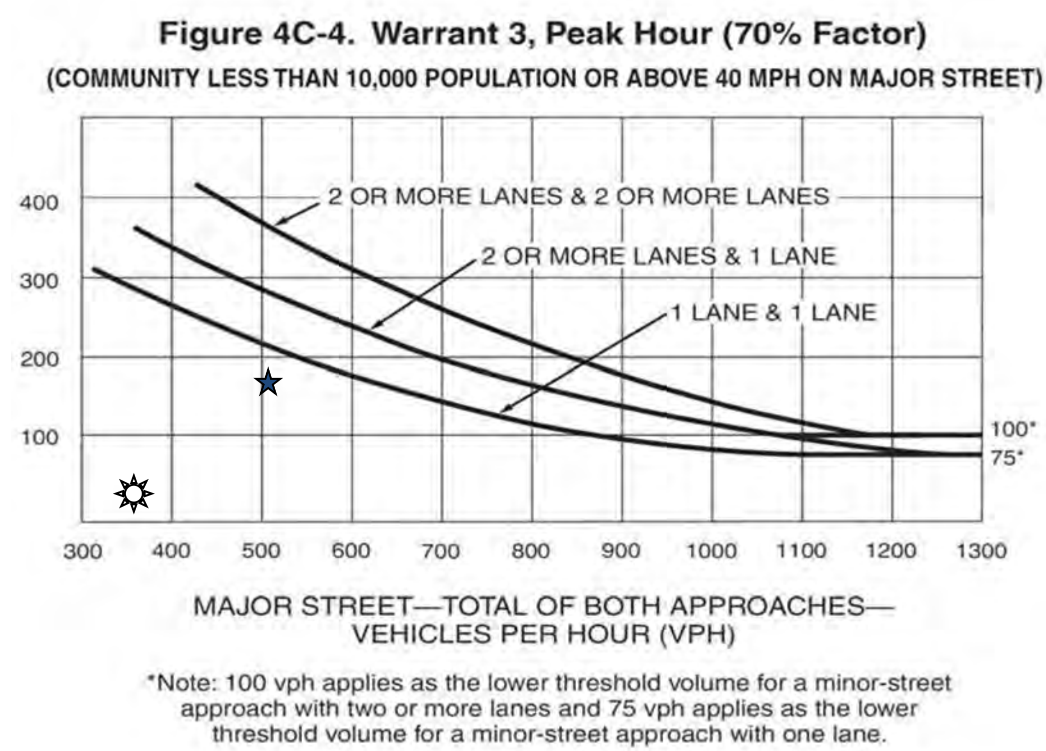
PM Peak Hour Volume – Signal Warrant is Met

Source: ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
Part 4: Highway Traffic Signals, November 7, 2014

Peak Hour Warrant (Rural Areas)

Existing - AM (PM) Peak Hour
Intersection: 4. North Avenue and State Route 99 NB On-Ramp

North Avenue Eastbound Left-Through Volume Highest Approach Volume = 45 (185) VPH



North Avenue Westbound Through-Right Volume = 354 (502) VPH

☼ **AM Peak Hour Volume – Signal Warrant is Not Met**

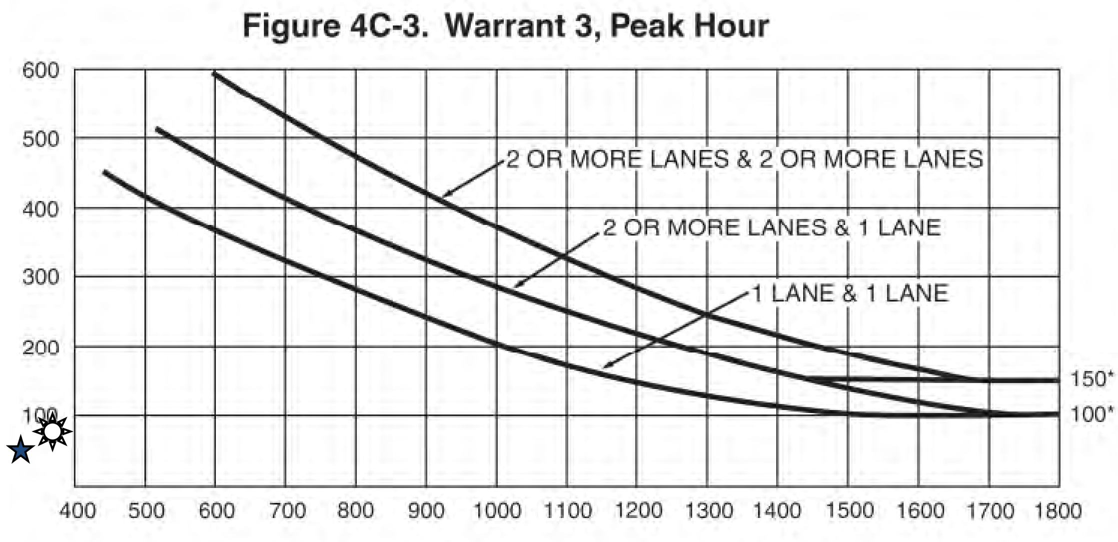
★ **PM Peak Hour Volume – Signal Warrant is Not Met**

Source:* *California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014

Peak Hour Warrant (Urban Areas)

Existing - AM (PM) Peak Hour
Intersection: 7. State Route 99 NB Off-Ramp and Cedar Avenue

Minor Street Highest Approach Volume = 92 (73) VPH



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Major Street Total Volume= 223 (193) VPH

AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

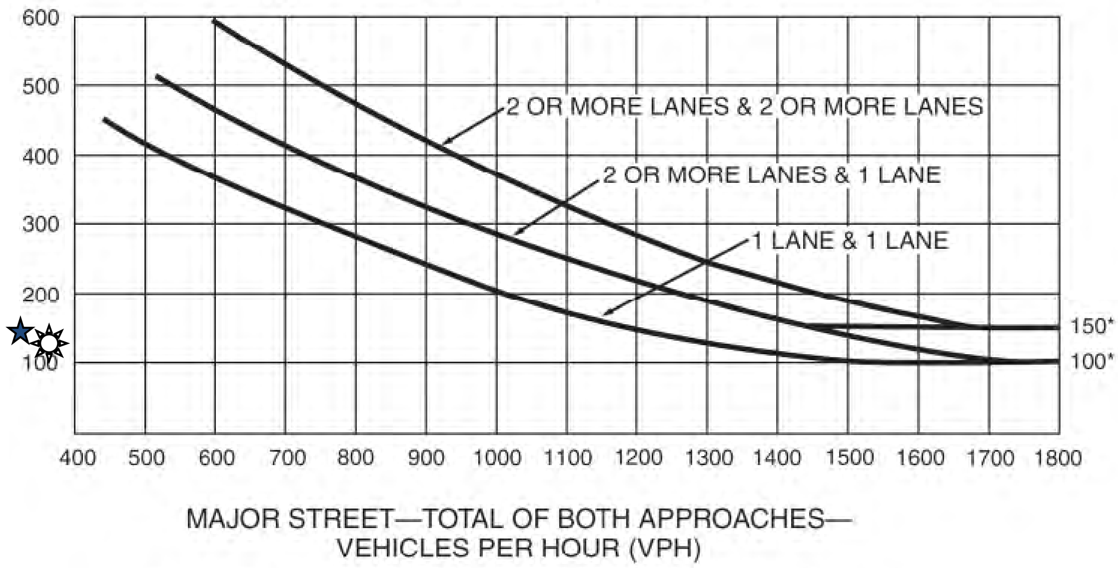
Source: ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

Peak Hour Warrant (Urban Areas)

Existing - AM (PM) Peak Hour
Intersection: 8. Parkway Drive and Cedar Avenue

Figure 4C-3. Warrant 3, Peak Hour

Minor Street Highest Approach Volume = 120 (138) VPH



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Major Street Total Volume = 252 (245) VPH

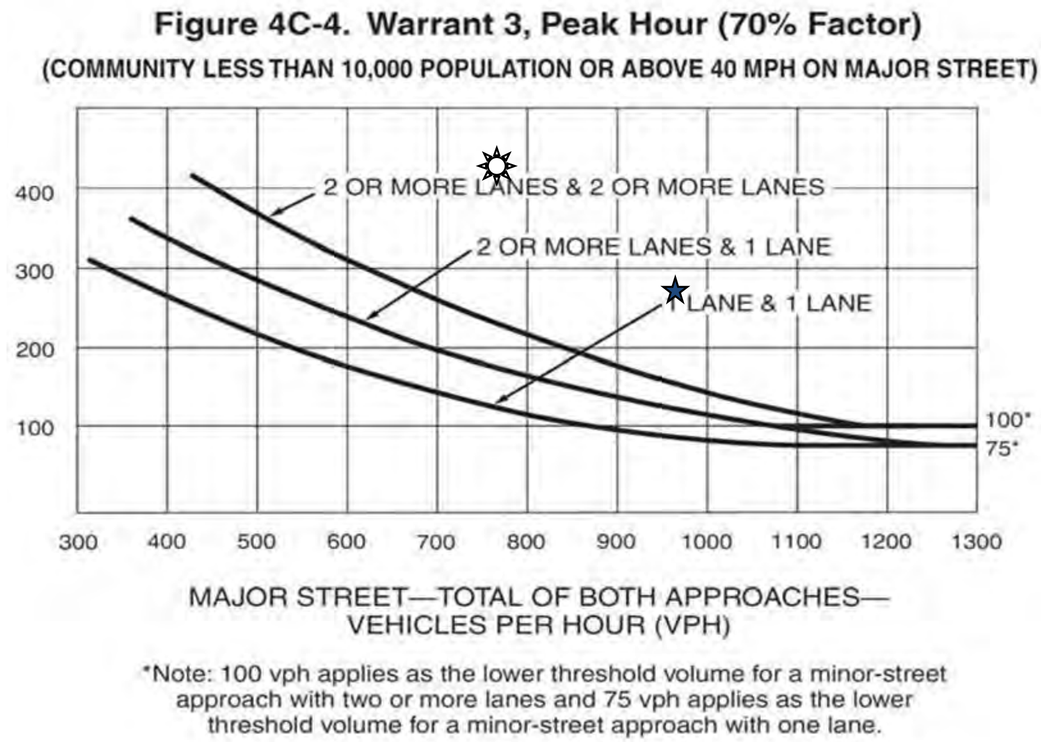
AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

Source: *California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014*

Peak Hour Warrant (Rural Areas)

Existing plus Project - AM (PM) Peak Hour
Intersection: 3. North Avenue and State Route 99 SB Off-Ramp

State Route 99
SB Off-Ramp
Highest Approach
Volume = 415 (275) VPH



North Avenue Total Volume = 788 (967) VPH

☼ **AM Peak Hour Volume – Signal Warrant is Met**

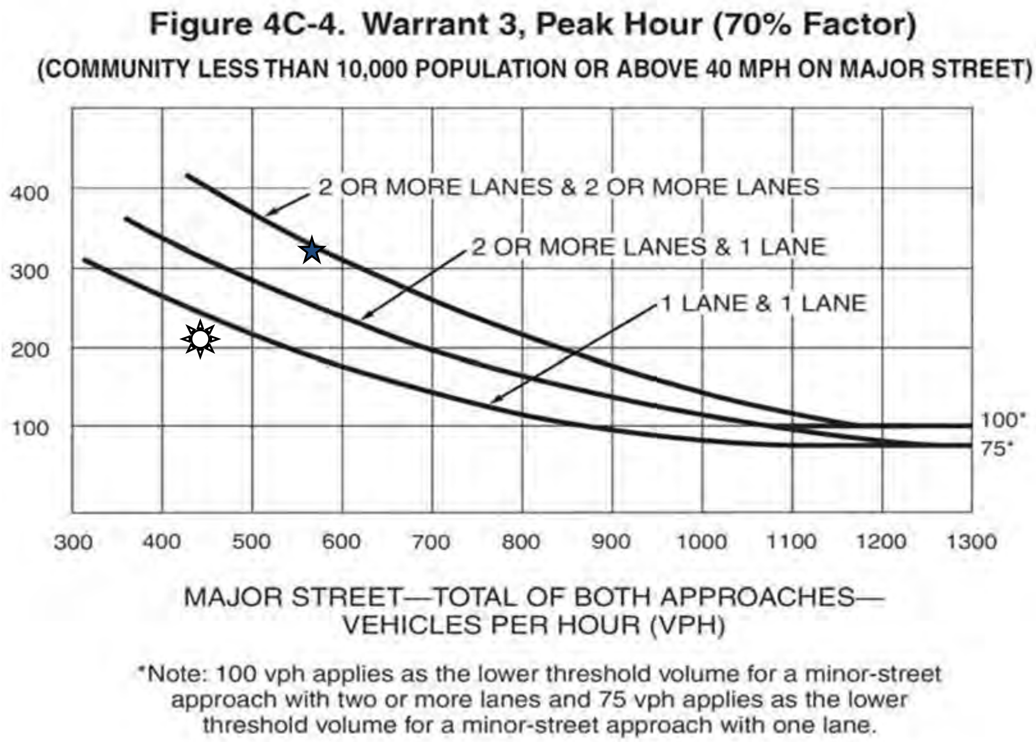
★ **PM Peak Hour Volume – Signal Warrant is Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Part 4: Highway Traffic Signals, November 7, 2014

Peak Hour Warrant (Rural Areas)

Existing plus Project - AM (PM) Peak Hour
Intersection: 4. North Avenue and State Route 99 NB On-Ramp

North Avenue Eastbound Left-Through Volume Highest Approach Volume = 201 (309) VPH



North Avenue Westbound Through-Right Volume = 448 (579) VPH

☼ **AM Peak Hour Volume – Signal Warrant is Not Met**

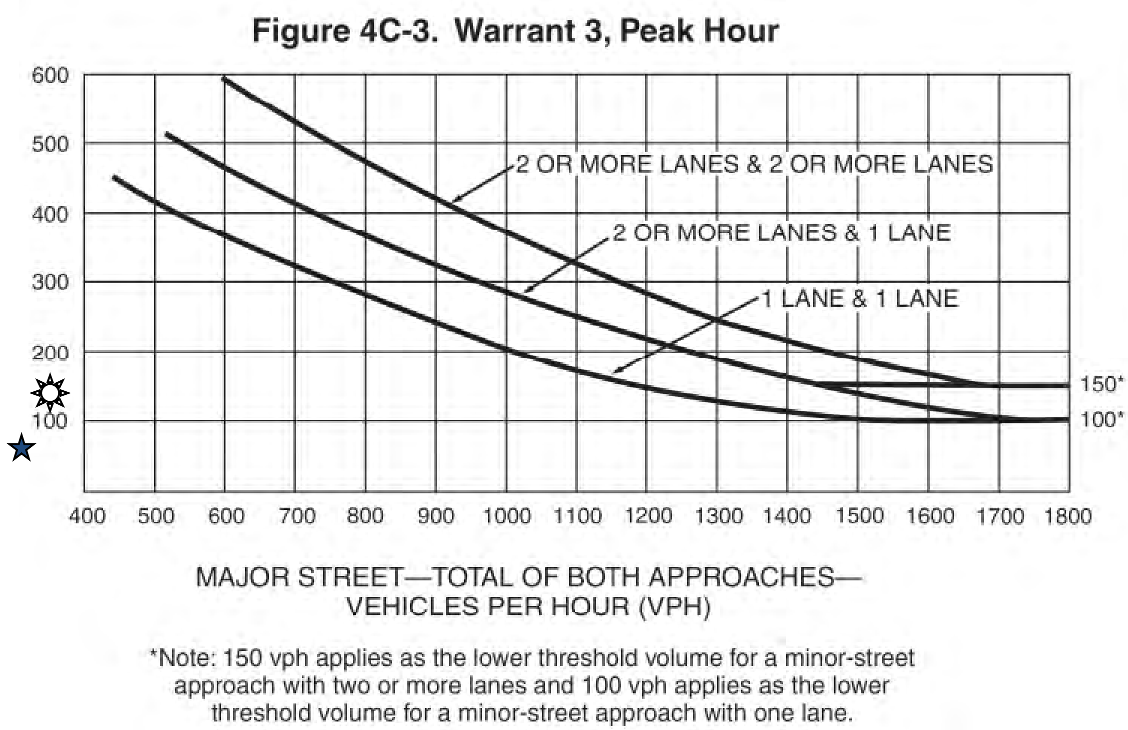
★ **PM Peak Hour Volume – Signal Warrant is Met**

Source: *California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)*
Part 4: Highway Traffic Signals, November 7, 2014

Peak Hour Warrant (Urban Areas)

Existing plus Project - AM (PM) Peak Hour
Intersection: 7. State Route 99 NB Off-Ramp and Cedar Avenue

Minor Street Highest Approach Volume = 138 (83) VPH



Major Street Total Volume= 177 (155) VPH

AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

Source: ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
Part 4: Highway Traffic Signals, November 7, 2014

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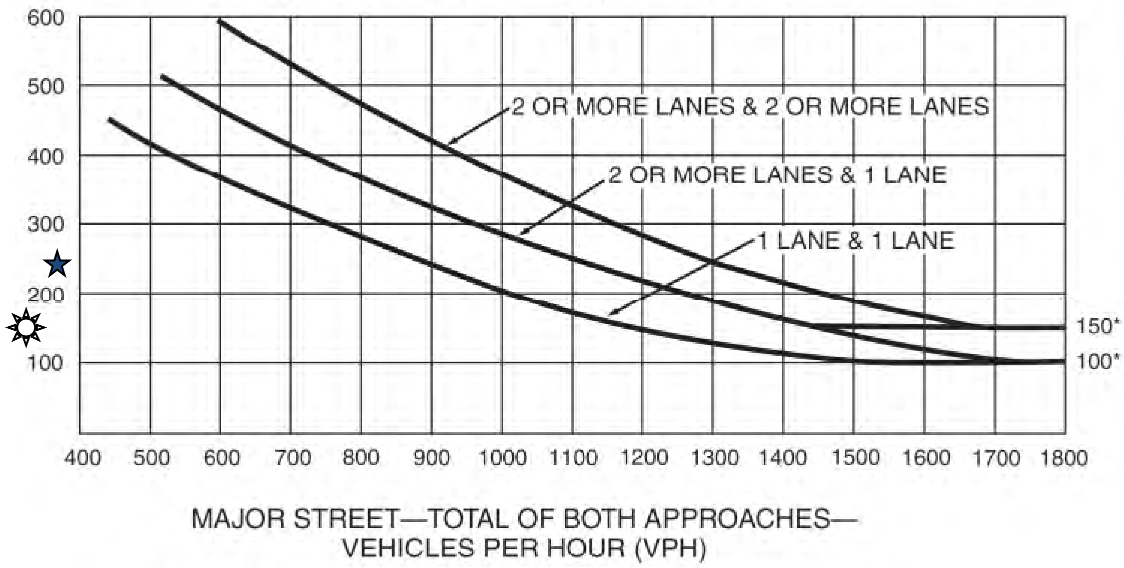
Peak Hour Warrant (Urban Areas)

Existing plus Project - AM (PM) Peak Hour
Intersection: 8. Parkway Drive and Cedar Avenue

Minor Street Highest Approach Volume = 142 (236) VPH

Figure 4C-3. Warrant 3, Peak Hour



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Major Street Total Volume = 256 (223) VPH

AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

Source: ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

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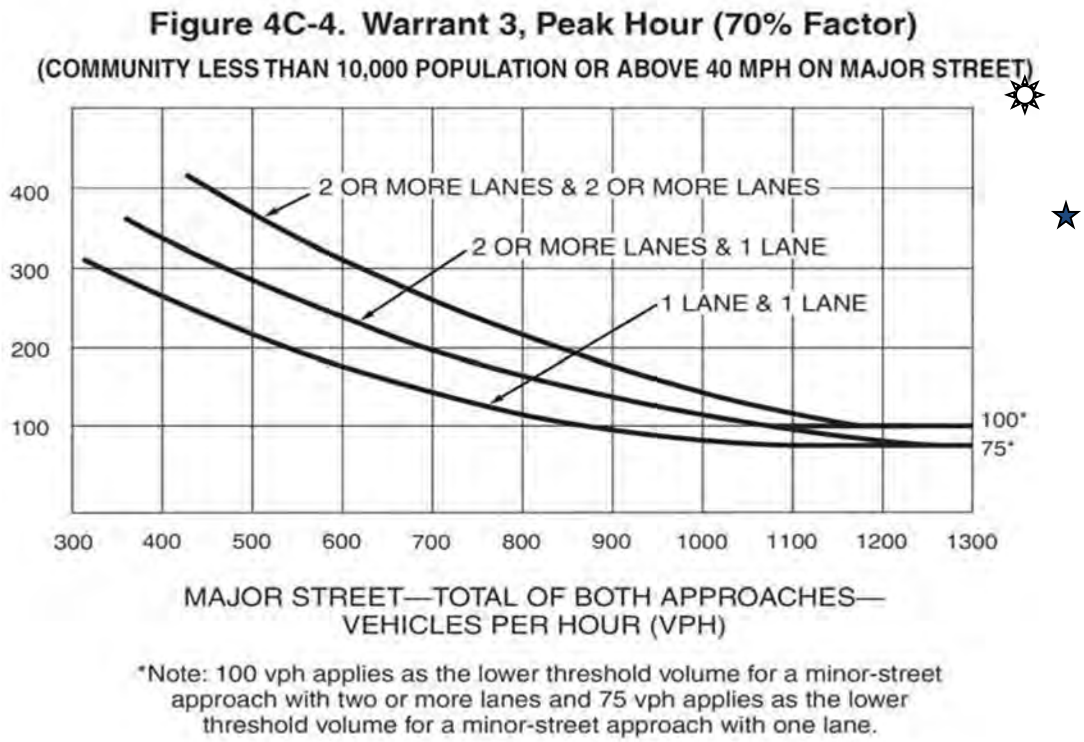
Peak Hour Warrant (Rural Areas)

Near Term plus Project - AM (PM) Peak Hour
Intersection: 3. North Avenue and State Route 99 SB Off-Ramp

State Route 99
SB Off-Ramp
Highest Approach
Volume = 765 (370) VPH



North Avenue Total Volume = 1503 (2036) VPH

☼ **AM Peak Hour Volume – Signal Warrant is Met**

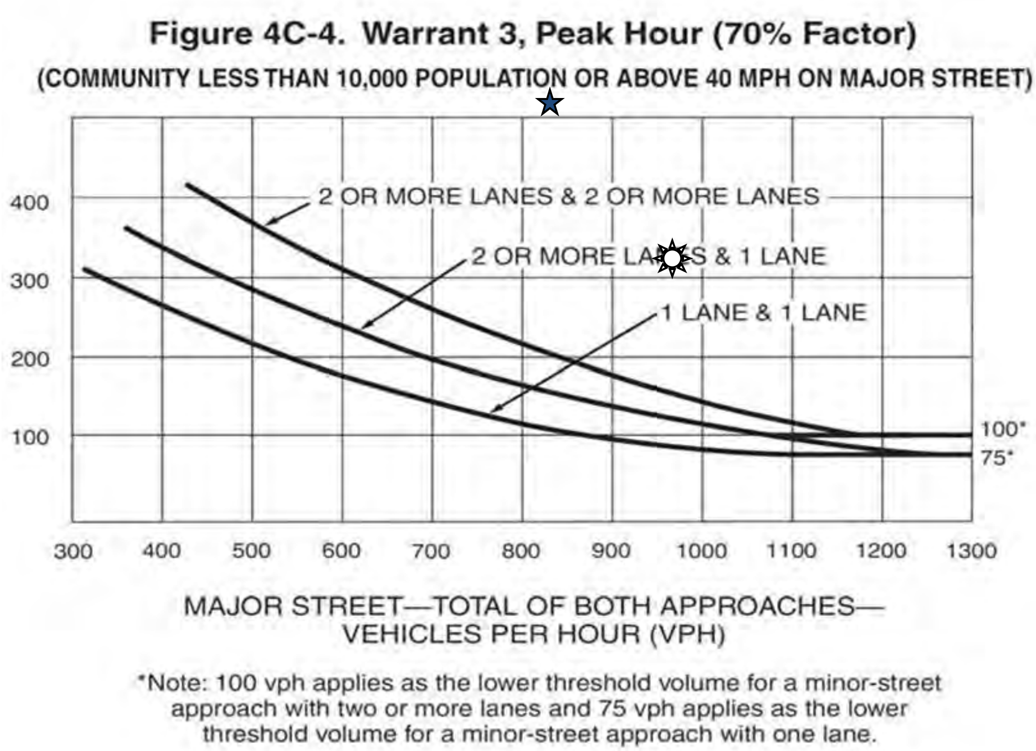
★ **PM Peak Hour Volume – Signal Warrant is Met**

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Part 4: Highway Traffic Signals, November 7, 2014

Peak Hour Warrant (Rural Areas)

Near Term plus Project - AM (PM) Peak Hour
Intersection: 4. North Avenue and State Route 99 NB On-Ramp

North Avenue Eastbound Left Volume Highest Approach Volume = 307 (762) VPH



North Avenue Westbound Through-Right Volume = 972 (815) VPH

☼ **AM Peak Hour Volume – Signal Warrant is Met**

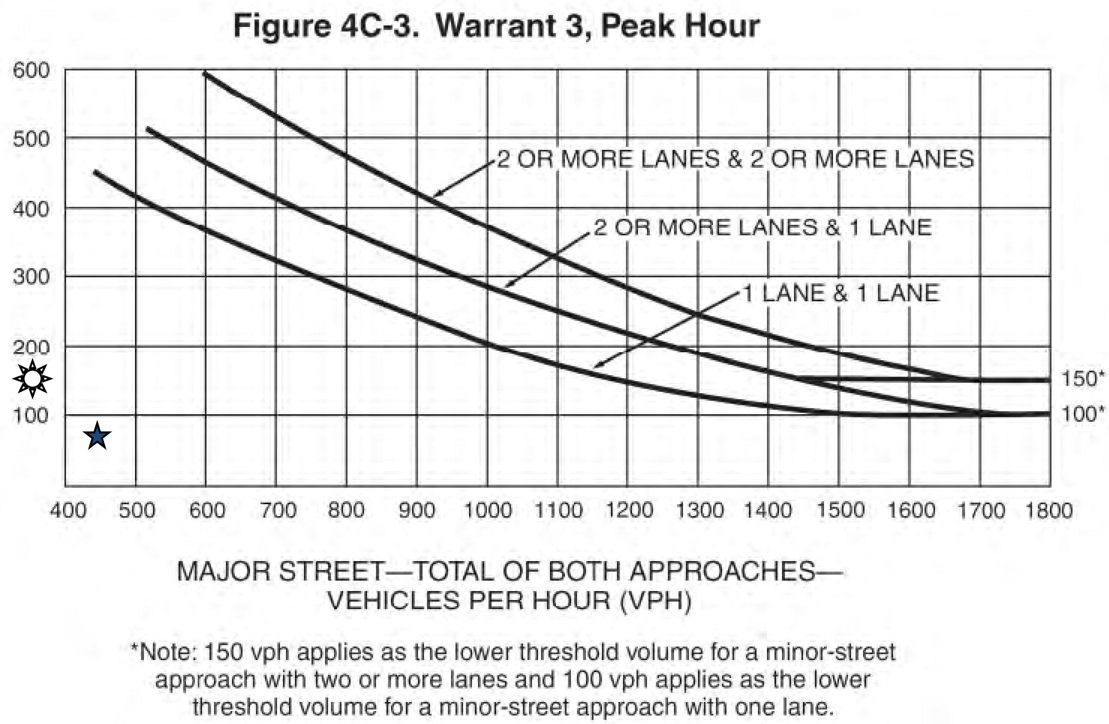
★ **PM Peak Hour Volume – Signal Warrant is Met**

Source:* *California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014

Peak Hour Warrant (Urban Areas)

Near Term plus Project - AM (PM) Peak Hour
Intersection: 7. State Route 99 NB Off-Ramp and Cedar Avenue

Minor Street Highest Approach Volume = 163 (87) VPH



Major Street Total Volume= 300 (431) VPH

AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

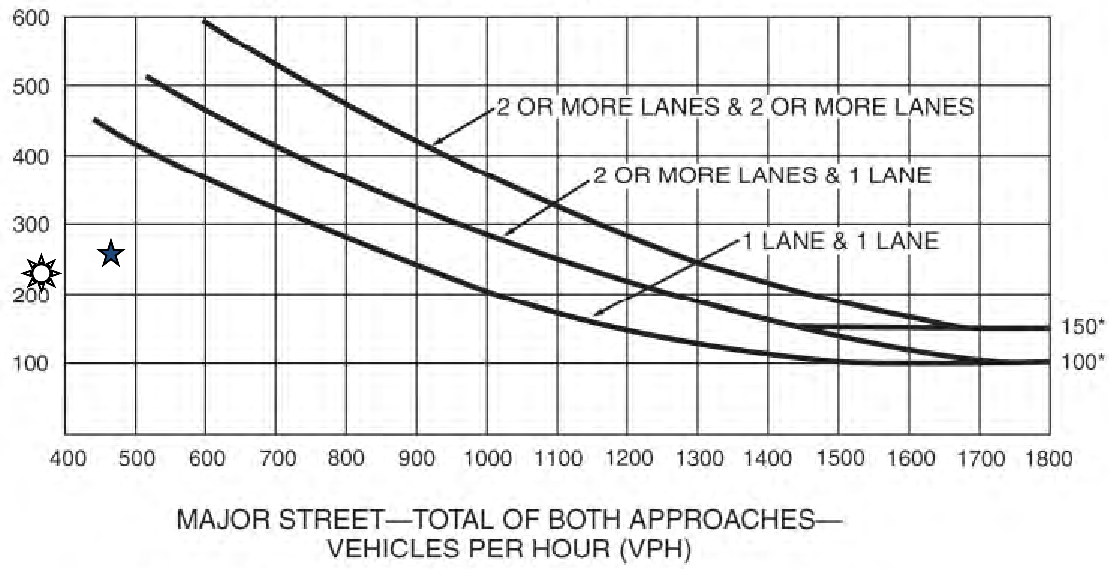
Source: ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

Peak Hour Warrant (Urban Areas)

Near Term plus Project - AM (PM) Peak Hour
Intersection: 8. Parkway Drive and Cedar Avenue

Figure 4C-3. Warrant 3, Peak Hour

Minor Street Highest Approach Volume = 215 (271) VPH



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Major Street Total Volume = 392 (471) VPH

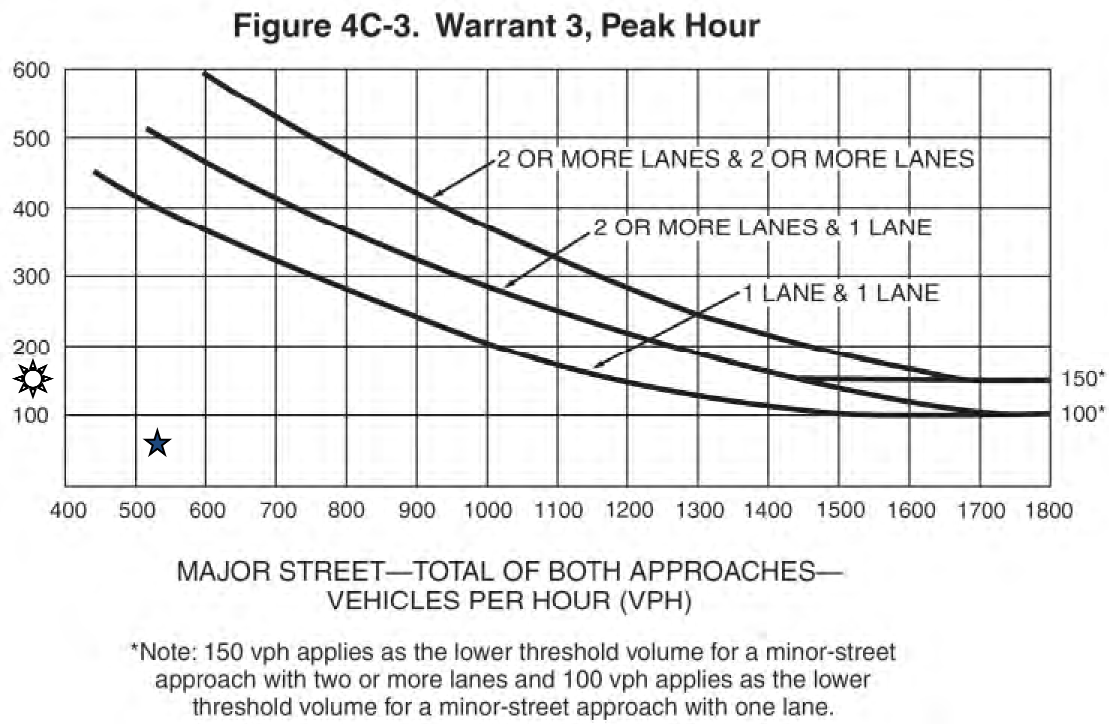
AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

Source: *California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014*

Peak Hour Warrant (Urban Areas)

Cumulative Year 2035 No Project - AM (PM) Peak Hour
Intersection: 8. Parkway Drive and Cedar Avenue

Minor Street Highest Approach Volume = 151 (73) VPH



Major Street Total Volume = 346 (522) VPH

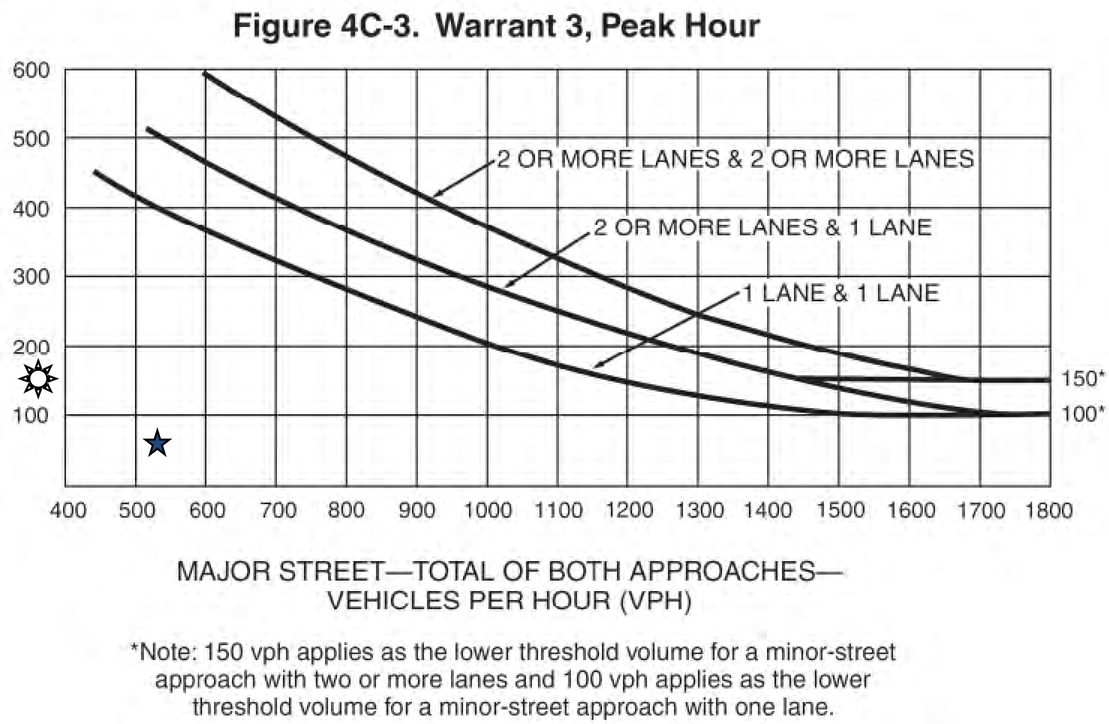
AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

Source: ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

Peak Hour Warrant (Urban Areas)

Cumulative Year 2035 plus Project - AM (PM) Peak Hour
Intersection: 8. Parkway Drive and Cedar Avenue

Minor Street Highest Approach Volume = 152 (73) VPH



Major Street Total Volume = 348 (525) VPH

AM Peak Hour Volume – Signal Warrant is Not Met
PM Peak Hour Volume – Signal Warrant is Not Met

Source: ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***