1605 Industrial Avenue
Warehouse Project
Transportation Analysis

Prepared for:

Dudek

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Executive Summary

This report presents the results of the transportation analysis conducted for a proposed warehouse development at 1605 Industrial Avenue in San Jose, California. This study was conducted for the purpose of identifying the potential transportation impacts related to the proposed warehouse.

The proposed project would replace the existing Specialty Truck Parts retailer with a 180,150-square foot (s.f.) high cube warehouse. Access to the site would be provided via two full-access driveways, one at the terminus of Industrial Avenue and one on Kings Row.

The potential impacts of the project were evaluated in accordance with the standards set forth by the City of San Jose. Based on the City of San Jose’s Transportation Analysis Policy and Transportation Analysis Handbook 2018, the Transportation Analysis (TA) report for the project includes a CEQA transportation analysis (TA) and a local transportation analysis (LTA). The CEQA transportation analysis comprises an evaluation of Vehicle Miles Traveled (VMT). The LTA supplements the CEQA transportation analysis by identifying transportation operational issues via an evaluation of weekday AM and PM peak-hour traffic conditions for one signalized intersection in the vicinity of the project site. The LTA also includes an analysis of site access, on-site circulation, parking, vehicle queuing, signal warrants at unsignalized study intersections, and effects to transit, bicycle, and pedestrian access.

CEQA Transportation Analysis

Project Vehicle Miles Traveled (VMT) Analysis

Based on the City of San Jose’s VMT Evaluation Tool, the project as currently proposed is estimated to generate a total of 14.92 VMT per employee, which exceeds City’s threshold of 14.37 VMT per employee for industrial uses. Therefore, the project would result in a significant transportation impact on VMT. The following mitigation measures are recommended to reduce the significant VMT impact:

- **Transportation Demand Management (TDM) Programs** – The project shall implement bike parking, a shower and changing room, commute trip reduction marketing and education programs, and ridesharing programs. These TDM measures are described in more detail below.

- **Bike Parking.** The project shall implement Long-term bike parking (1 space per 10 full-time employees per San Jose’s Zoning Code Section 20.90.060B).

- **Showers and Changing Room.** The project shall implement one shower and changing room per San Jose Zoning Code Section 20.90.066A
• **Commute Trip Reduction Marketing and Education Programs.** The project shall implement marketing/educational campaigns that promote the use of transit, shared rides, and travel through active modes. An on-site TDM coordinator shall distribute information about alternative commute options through new employee orientations, special promotional events, and publications.

• **Ride-Sharing Programs.** An on-site TDM coordinator shall organize a program to match individuals interested in carpooling who have similar commutes. This measure, which shall apply to 100 percent of all employees, promotes the use of carpooling and reduces the number of drive-alone trips.

The above-list TDM measures would reduce the project VMT to 13.25 per employee, which would cause the project VMT to fall below the City’s threshold and reduce the project impact to a less than significant level.

**CEQA Cumulative Analysis**

The project is consistent with the General Plan goals and policies for the following reasons:

- The project site is near bicycle lanes on Oakland Road.
- The project would provide bicycle parking on the ground level near the project entrance and a shower to encourage employee use of alternative transportation modes.
- The project would implement a TDM plan that includes ride-sharing programs aimed at reducing VMT.
- The project promotes economic development and completion of the General Plan transportation network through the US-101/Mabury Transportation Development Policy (TDP)
- The project maintains, enhances, and develops the employment lands within an identified key employment area (the East Gish and Mabury industrial area) (FS-4.2)

Therefore, based on the project description, the proposed project would be consistent with the Envision San Jose 2040 General Plan. The project would be considered part of the cumulative solution to meet the General Plan’s long-range transportation goals and would result in a less-than-significant cumulative impact.

**Local Transportation Analysis**

**Project Trip Generation**

Based on trip generation rates recommended by the Institute of Transportation Engineers, and after subtracting trips generated by the existing use on site, the proposed warehouse project is estimated to generate 123 net new daily vehicle trips, with 11 new trips occurring during the AM peak hour and 12 new trips occurring during the PM peak hour.

**Intersection Traffic Operations**

Based on the City of San Jose intersection operations analysis criteria, the project would not have an adverse effect on the signalized study intersection at Oakland Road and E. Gish Road.

**Other Transportation Issues**

The proposed site plan shows adequate site access and on-site circulation. The project would not have an adverse effect on the existing bicycle or transit facilities in the study area.
Recommendations

- The proposed project is estimated to add one vehicle trip to the US 101/Oakland Road interchange during the PM peak hour. Therefore, the project will be required to pay the US 101/Oakland/Mabury Transportation Development Policy traffic impact fee.

- While the project would meet the City’s requirements for the number of bicycle parking spaces, the site plan should be revised to provide secure long-term bicycle parking per the City’s Bicycle Parking Standards.

- The site plan should be revised to add motorcycle parking per the City’s Motorcycle Parking Standards.

- The results of the signal warrant check indicate that the AM and PM peak-hour volumes at the I-880 Northbound Ramps/Gish Road intersection currently meet the signal warrant and would continue to do so with the project. The project applicant should coordinate with City of San Jose staff to determine if there are any plans to signalize this intersection or install a roundabout. If so, it would be appropriate for the project to make a fair share monetary contribution toward the planned intersection improvements.

- The project applicant should provide a fair share monetary contribution toward the future improvements to pursue the construction of concrete trackways and sidewalks on the north and south sides of Gish Road across the tracks. The future improvements would be coordinated between the City and Union Pacific Railroad.
1. Introduction

This report presents the results of the Transportation Analysis (TA) conducted for the proposed warehouse development at 1605 Industrial Avenue in San Jose, California. This study was conducted for the purpose of satisfying the requirements of the California Environmental Quality Act (CEQA) and the City of San Jose. The potential impacts of the project were evaluated in accordance with the standards set forth by the City of San Jose, and the Santa Clara Valley Transportation Authority (VTA). The VTA administers the Santa Clara County Congestion Management Program (CMP).

The transportation impacts of the project were evaluated following the standards and methodologies set forth in the City of San Jose’s Transportation Analysis Handbook 2018. Based on the City of San Jose’s Transportation Analysis Policy and Transportation Analysis Handbook 2018, the TA report for the project includes a CEQA transportation analysis and a local transportation analysis (LTA).

Project Description

The 10.96-acre project site is located at the terminus of Industrial Avenue (see Figure 1). As currently proposed, the project would involve replacing the existing Specialty Truck Parts retailer with a 180,150-square foot (s.f.) high cube warehouse (see Figure 2). Upon completion, there would be a total of 75 employees working on site. The project proposes 74 vehicle parking spaces in a surface lot on the south side of the site, and up to 77 container parking stalls and 28 loading lock spaces on the east side of the site. Access to the site would be provided via two full-access driveways, one at the terminus of Industrial Avenue and one on Kings Row. The local transportation analysis evaluates an earlier project description that contained 185,500 s.f. of warehouse space. Thus, the analysis is conservative in that it slightly overstates the number of trips that would be generated by the proposed project.

Transportation Policies

In adherence to State of California Senate Bill 743 (SB 743) and the City’s goals as set forth in the Envision San Jose 2040 General Plan, the City of San Jose has adopted a new Transportation Analysis Policy, Council Policy 5-1. The policy replaces its predecessor (Policy 5-3) and establishes the thresholds for transportation impacts under the CEQA based on vehicle miles traveled (VMT) instead of levels of service (LOS). The intent of this change is to shift the focus of transportation analysis under CEQA from vehicle delay and roadway auto capacity to a reduction in vehicle emissions, and the creation of robust multimodal networks that support integrated land uses. All new projects are required to analyze transportation impacts using the VMT metric and conform to Council Policy 5-1. The new Transportation Analysis Policy took effect on March 29, 2018.
Figure 1
Site Location and Study Intersections
The new Transportation Analysis Policy aligns with the Envision San Jose 2040 General Plan which seeks to focus new development growth within Planned Growth Areas, bringing together office, residential, and service land uses to internalize trips and reduce VMT. VMT-based policies support dense, mixed-use, infill projects as established in the General Plan’s Planned Growth Areas.

The Envision San Jose 2040 General Plan contains the following policies to encourage the use of non-automobile transportation modes to minimize vehicle trip generation and reduce VMT:

- Accommodate and encourage the use of non-automobile transportation modes to achieve San Jose’s mobility goals and reduce vehicle trip generation and VMT (TR-1.1);

- Consider impacts on overall mobility and all travel modes when evaluating transportation impacts of new developments or infrastructure projects (TR-1.2);

- Increase substantially the proportion of commute travel using modes other than the single-occupant vehicle in order to meet the City’s mode split targets for San Jose residents and workers (TR-1.3);

- Through the entitlement process for new development, projects shall be required to fund, or construct needed transportation improvements for all transportation modes, giving first consideration to improvement of biking, walking and transit facilities and services that encourage reduced vehicle travel demand (TR-1.4);

- Actively coordinate with regional transportation, land use planning, and transit agencies to develop a transportation network with complementary land uses that encourage travel by bicycling, walking and transit, and ensure that regional greenhouse gas emissions standards are met (TR-1.8);

- Give priority to the funding of multimodal projects that provide the most benefit to all users. Evaluate new transportation projects to make the most efficient use of transportation resources and capacity (TR-1.9);

- Coordinate the planning and implementation of citywide bicycle and pedestrian facilities and supporting infrastructure. Give priority to bicycle and pedestrian safety and access improvements at street crossings and near areas with higher pedestrian concentrations (school, transit, shopping, hospital, and mixed-use areas) (TR-2.1);

- Provide a continuous pedestrian and bicycle system to enhance connectivity throughout the City by completing missing segments. Eliminate or minimize physical obstacles and barriers that impede pedestrian and bicycle movement on City streets. Include consideration of grade-separated crossings at railroad tracks and freeways. Provide safe bicycle and pedestrian connections to all facilities regularly accessed by the public, including the Mineta San Jose International Airport (TR-2.2);

- Integrate the financing, design and construction of pedestrian and bicycle facilities with street projects. Build pedestrian and bicycle improvements at the same time as improvements for vehicular circulation (TR-2.5);

- Require new development where feasible to provide on-site facilities such as bicycle storage and showers, provide connections to existing and planned facilities, dedicate land to expand
existing facilities or provide new facilities such as sidewalks and/or bicycle lanes/paths, or share in the cost of improvements (TR-2.8);

- Coordinate and collaborate with local School Districts to provide enhanced, safer bicycle and pedestrian connections to school facilities throughout San Jose (TR-2.10);

- As part of the development review process, require that new development along existing and planned transit facilities consist of land use and development types and intensities that contribute towards transit ridership. In addition, require that new development is designed to accommodate and to provide direct access to transit facilities (TR-3.3);

- Support the development of amenities and land use and development types and intensities that increase daily ridership on the VTA, BART, Caltrain, ACE and Amtrak California systems and provide positive fiscal, economic, and environmental benefits to the community (TR-4.1);

- Require large employers to develop and maintain TDM programs to reduce the vehicle trips generated by their employees (TR-7.1);

- Promote transit-oriented development with reduced parking requirements and promote amenities around appropriate transit hubs and stations to facilitate the use of available transit services (TR-8.1);

- Balance business viability and land resources by maintaining an adequate supply of parking to serve demand while avoiding excessive parking supply that encourages automobile use (TR-8.2);

- Support using parking supply limitations and pricing as strategies to encourage the use of non-automobile modes (TR-8.3);

- Discourage, as part of the entitlement process, the provision of parking spaces significantly above the number of spaces required by code for a given use (TR-8.4);

- Allow reduced parking requirements for mixed-use developments and for developments providing shared parking or a comprehensive transportation demand management (TDM) program, or developments located near major transit hubs or within Villages and Corridors and other growth areas (TR-8.6);

- Encourage private property owners to share their underutilized parking supplies with the general public and/or other adjacent private developments (TR-8.7);

- Within new development, create and maintain a pedestrian-friendly environment by connecting the internal components with safe, convenient, accessible, and pleasant pedestrian facilities and by requiring pedestrian connections between building entrances, other site features, and adjacent public streets (CD-3.3);

- Create a pedestrian-friendly environment by connecting new residential development with safe, convenient, accessible, and pleasant pedestrian facilities. Provide such connections between new development, its adjoining neighborhood, transit access points, schools, parks, and nearby commercial areas (LU-9.1);
- Encourage all developers to install and maintain trails when new development occurs adjacent to a designated trail location. Use the City's Parkland Dedication Ordinance and Park Impact Ordinance to have residential developers build trails when new residential development occurs adjacent to a designated trail location, consistent with other parkland priorities. Encourage developers or property owners to enter into formal agreements with the City to maintain trails adjacent to their properties (PR-8.5).

**CEQA Transportation Analysis Scope**

The City of San Jose’s Transportation Analysis Policy establishes procedures for determining project impacts on VMT based on project description, characteristics, and/or location. The City of San Jose defines VMT as the total miles of travel by personal motorized vehicles a project is expected to generate in a day. VMT measures the full distance of personal motorized vehicle-trips with one end within the project. Typically, development projects that are farther from other, complementary land uses (such as a business park far from housing) and in areas without transit or active transportation infrastructure (bike lanes, sidewalks, etc.) generate more driving than development near complementary land uses with more robust transportation options. Therefore, developments located in a central business district with high density and diversity of complementary land uses and frequent transit services are expected to internalize trips and generate shorter and fewer vehicle trips than developments located in a suburban area with low density of residential developments and no transit service in the project vicinity.

A project's VMT is compared to the appropriate thresholds of significance based on the project location and type of development. When assessing an office or industrial project, the project’s VMT is divided by the number of employees. The project’s VMT is then compared to the VMT thresholds of significance established based on the average area VMT. A project located in a downtown area is expected to have the project VMT lower than the average area VMT, while a project located in a suburban area is expected to generate the project VMT higher than the average area VMT.

The thresholds of significance for development projects, as established in the Transportation Analysis Policy, are based on the existing regional average VMT level for employment uses. Figure 3 shows the current VMT levels estimated by the City for workers based on the locations of jobs. Developments in the green-colored areas are estimated to have VMT levels that are below the thresholds of significance, while the pink-colored areas are estimated to have VMT levels that are above the thresholds of significance.

The CEQA transportation analysis of the project includes a project-level VMT impact analysis using the City’s sketch tool and a cumulative impact analysis that demonstrates the project’s consistency with the Envision San Jose 2040 General Plan.

**Screening for VMT Analysis**

The *Transportation Analysis Handbook 2018* includes screening criteria for projects that are expected to result in less-than-significant VMT impacts. Projects that meet the screening criteria do not require a CEQA transportation analysis but may still be required to provide a Local Transportation Analysis (LTA).
Figure 3
VMT Heat Map for Workers in San Jose

City of San José - VMT per Job
- Threshold VMT Areas
- Regional Average VMT Areas
- Mitigatable VMT Areas
- Immitigable VMT Areas

Site Location
Half-mile Radius Around Site

See Detail A

Detail A
The size of the proposed warehouse use does not qualify as a small infill project. In addition, the project is located in an area in which the per-employee VMT (15.19) exceeds the threshold of significance for industrial uses (14.37). Thus, the project use does not meet the screening criteria set forth in the *Transportation Analysis Handbook 2018*, and the project requires a detailed CEQA transportation analysis.

**Local Transportation Analysis Scope**

The Local Transportation Analysis (LTA) supplements the VMT analysis by identifying transportation operational issues that may arise due to a new development, as well as evaluating the effects of a new development on transportation, access, circulation, and other safety-related elements in the proximate area of the project.

The LTA comprises an analysis of AM and PM peak-hour traffic conditions for three intersections in the vicinity of the project site.

**Study Intersections:**

1. I-880 Northbound On/Off Ramps and E. Gish Road (unsignalized)
2. Industrial Avenue and E. Gish Road (unsignalized)
3. Oakland Road and E. Gish Road

Traffic conditions at the study intersections were analyzed for both the weekday AM and PM peak hours of adjacent street traffic. The AM peak hour is expected to occur between 7:00 AM and 9:00 AM and the PM peak hour is expected to occur between 4:00 PM and 6:00 PM on a regular weekday. These are the peak commute hours during which most traffic congestion occurs on the roadways.

Traffic conditions and intersection operations were evaluated for the following scenarios:

**Scenario 1:** *Existing Conditions.* Existing traffic volumes at the study intersections were based on traffic counts conducted in December 2018. The signalized study intersection was evaluated with a level of service analysis using TRAFFIX software in accordance with the *2000 Highway Capacity Manual* methodology.

**Scenario 2:** *Background Conditions.* Background traffic volumes reflect traffic added by nearby approved projects that are not yet constructed or occupied. The added traffic from approved but not yet completed developments within the City of San Jose was provided by City staff in the form of the Approved Trips Inventory (ATI).

**Scenario 4:** *Background Plus Project Conditions.* Background plus project conditions reflect projected traffic volumes on the planned roadway network with completion of the project and approved developments. Background traffic volumes with the project were estimated by adding to background traffic volumes the additional traffic generated by the project.

**Scenario 5:** *Cumulative Conditions.* Cumulative traffic volumes reflect future traffic volumes with the proposed project as well as expected traffic growth through the year 2020. Cumulative traffic volumes include the traffic associated with potential (but not yet approved) developments based on a growth rate of 1.2% per year.

The LTA also includes an analysis of site access, on-site circulation, vehicle queuing, signal warrants at unsignalized study intersections, and effects to transit, bicycle, and pedestrian access.
VMT Analysis Methodology

Methodology
To determine whether a project would result in CEQA transportation impacts related to VMT, the City has developed the San Jose VMT Evaluation Tool (sketch tool) to streamline the analysis for residential, office, and industrial projects with local traffic. For non-residential or non-office projects, very large projects, or projects that can potentially shift travel patterns, the City’s Travel Demand Model can be used to determine project VMT. Because the proposed project is relatively small and would not affect existing traffic patterns, the sketch tool is used to estimate the project VMT and determine whether the project would result in a significant VMT impact.

Based on the assessor’s parcel number (APN) of a project, the sketch tool identifies the existing average VMT per capita and VMT per employee for the area. Based on the project location, type of development, project description, and proposed trip reduction measures, the sketch tool calculates the project VMT. Projects located in areas where the existing VMT is above the established threshold are referred to as being in “high-VMT areas”. Projects in high-VMT areas are required to include a set of VMT reduction measures that would reduce the project VMT to the extent possible.

The sketch tool evaluates a list of selected VMT reduction measures that can be applied to a project to reduce the project VMT. There are four strategy tiers whose effects on VMT can be calculated with the sketch tool:

1. Project characteristics (e.g. density, diversity of uses, design, and affordability of housing) that encourage walking, biking and transit uses.
2. Multimodal network improvements that increase accessibility for transit users, bicyclists, and pedestrians,
3. Parking measures that discourage personal motorized vehicle-trips, and
4. Transportation demand management (TDM) measures that provide incentives and services to encourage alternatives to personal motorized vehicle-trips.

The first three strategies – land use characteristics, multimodal network improvements, and parking – are physical design strategies that can be incorporated into the project design. TDM includes programmatic measures that aim to reduce VMT by decreasing personal motorized vehicle mode share and by encouraging more walking, biking, and riding transit. TDM measures should be enforced through annual trip monitoring to assess the project’s status in meeting the VMT reduction goals.

Thresholds of Significance
Table 1 shows the VMT thresholds of significance for development projects, as established in the Transportation Analysis Policy. Projects that include industrial employment uses (warehouse) are said to create a significant adverse impact when the estimated project-generated VMT exceeds the existing regional average VMT per employee. Currently, the reported regional average and significant impact threshold is 14.37 VMT per employee.

Projects that trigger a VMT impact can assess a variety of the four strategies described above to reduce impacts. A significant impact is said to be satisfactorily mitigated when the strategies and VMT reductions implemented render the VMT impact less than significant.
Table 1
VMT Thresholds of Significance for Development Projects (March 2018)

<table>
<thead>
<tr>
<th>Project Types</th>
<th>Significance Criteria</th>
<th>Current Level</th>
<th>Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Uses</td>
<td>Project VMT per capita exceeds existing citywide average VMT per capita minus 15 percent OR existing regional average VMT per capita minus 15 percent, whichever is lower.</td>
<td>11.91 VMT per capita (Citywide Average)</td>
<td>10.12 VMT per capita</td>
</tr>
<tr>
<td>General Employment Uses</td>
<td>Project VMT per employee exceeds existing regional average VMT per employee minus 15 percent.</td>
<td>14.37 VMT per employee (Regional Average)</td>
<td>12.22 VMT per employee</td>
</tr>
<tr>
<td>Industrial Employment Uses</td>
<td>Project VMT per employee exceeds existing regional average VMT per employee.</td>
<td>14.37 VMT per employee (Regional Average)</td>
<td>14.37 VMT per employee</td>
</tr>
<tr>
<td>Retail/ Hotel/ School Uses</td>
<td>Net increase in existing regional total VMT.</td>
<td>Regional Total VMT</td>
<td>Net Increase</td>
</tr>
<tr>
<td>Public/Quasi-Public Uses</td>
<td>In accordance with most appropriate type(s) as determined by Public Works Director.</td>
<td>Appropriate levels listed above</td>
<td>Appropriate thresholds listed above</td>
</tr>
<tr>
<td>Mixed-Uses</td>
<td>Evaluate each land use component of a mixed-use project independently, and apply the threshold of significance for each land use type included.</td>
<td>Appropriate levels listed above</td>
<td>Appropriate thresholds listed above</td>
</tr>
<tr>
<td>Change of Use/ Additions to Existing Development</td>
<td>Evaluate the full site with the change of use or additions to existing development, and apply the threshold of significance for each project type included.</td>
<td>Appropriate levels listed above</td>
<td>Appropriate thresholds listed above</td>
</tr>
<tr>
<td>Area Plans</td>
<td>Evaluate each land use component of the area plan independently, and apply the threshold of significance for each land use type included.</td>
<td>Appropriate levels listed above</td>
<td>Appropriate thresholds listed above</td>
</tr>
</tbody>
</table>

Source: City of San Jose, 2018 Transportation Analysis Handbook, Table 2.

Intersection Operations Analysis Methodology

This section presents the methods used to evaluate traffic operations at study intersections. It includes descriptions of the data requirements, the analysis methodologies, the applicable level of service standards, and the criteria defining adverse effects on intersections operations.

The signalized study intersection is located within the City of San Jose and was evaluated based on the City of San Jose level of service standard.

Data Requirements

The data required for the analysis were obtained from new traffic counts, the City of San Jose, the VTA Congestion Management Program (CMP), and field observations. The following data were collected from these sources:

- existing traffic volumes
- existing lane configurations
• signal timing and phasing
• approved project trips
• site location type (i.e. central city urban, urban high-transit, urban low-transit, etc.)

**Level of Service Standard and Analysis Methodologies**

Traffic conditions at the signalized study intersection were evaluated using level of service (LOS). *Level of Service* is a qualitative description of operating conditions ranging from LOS A, or free-flow conditions with little or no delay, to LOS F, or jammed conditions with excessive delays. The various analysis methods are described below.

**Signalized Intersections**

The signalized study intersection was evaluated based on the 2000 Highway Capacity Manual (HCM) level of service methodology using the TRAFFIX software. This method evaluates signalized intersection operations on the basis of average control delay time for all vehicles at the intersection. TRAFFIX is also the CMP-designated intersection level of service methodology, thus, the City of San Jose employs the CMP default values for the analysis parameters. The correlation between average control delay and level of service at signalized intersections is shown in Table 2.

The signalized study intersection is subject to the City of San Jose level of service standards. The City of San Jose has established LOS D as the minimum acceptable intersection operations standard for all signalized intersections unless superseded by an Area Development Policy. The LOS D standard applies to the signalized study intersection evaluated in this report.

**Unsignalized Intersections**

The study also evaluated two unsignalized intersections in the City of San Jose. San Jose has not established a level of service standard for unsignalized intersections, thus the unsignalized study intersections were evaluated for operational issues.

**Definition of Adverse Intersection Operations Effects**

According to the City of San Jose’s *Transportation Analysis Handbook 2018*, an adverse effect on intersection operations occurs if for either peak hour:

1. The level of service at a signalized intersection degrades from an acceptable level (LOS D or better) under background conditions to an unacceptable level under background plus project conditions, or

2. The level of service at a signalized intersection is an unacceptable level (LOS E or F) under background conditions and the addition of project trips cause both the critical-movement delay at the intersection to increase by four or more seconds and the volume-to-capacity ratio (V/C) to increase by one percent (.01) or more.

The exception to this threshold is when the addition of project traffic reduces the amount of average control delay for critical movements, i.e., the change in average control delay for critical movements are negative. In this case, the threshold is when the project increases the critical v/c value by 0.01 or more.
Table 2
Signalized Intersection Level of Service Definitions Based on Control Delay

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Description</th>
<th>Average Control Delay Per Vehicle (sec.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Signal Progression is extremely favorable. Most vehicles arrive during the green phase and do not stop at all. Short cycle lengths may also contribute to the very low vehicle delay.</td>
<td>10.0 or less</td>
</tr>
<tr>
<td>B+</td>
<td>Operations characterized by good signal progression and/or short cycle lengths.</td>
<td>10.1 to 12.0</td>
</tr>
<tr>
<td>B</td>
<td>More vehicles stop than with LOS A, causing higher levels of average vehicle delay.</td>
<td>12.1 to 18.0</td>
</tr>
<tr>
<td>B-</td>
<td></td>
<td>18.1 to 20.0</td>
</tr>
<tr>
<td>C+</td>
<td>Higher delays may result from fair signal progression and/or longer cycle lengths.</td>
<td>20.1 to 23.0</td>
</tr>
<tr>
<td>C</td>
<td>Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though may still pass through the intersection without delay.</td>
<td>23.1 to 32.0</td>
</tr>
<tr>
<td>C-</td>
<td></td>
<td>32.1 to 35.0</td>
</tr>
<tr>
<td>D+</td>
<td>The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable signal progression, long cycle lengths, or high volume-to-capacity (V/C) ratios. Many vehicles stop and individual cycle delay.</td>
<td>35.1 to 39.0</td>
</tr>
<tr>
<td>D</td>
<td></td>
<td>39.1 to 51.0</td>
</tr>
<tr>
<td>D-</td>
<td></td>
<td>51.1 to 55.0</td>
</tr>
<tr>
<td>E+</td>
<td>This is considered to be the limit of acceptable delay. These high delay values generally indicate poor signal progression, long cycle lengths, and high volume-to-capacity (V/C) ratios. Individual cycle failures occur frequently.</td>
<td>55.1 to 60.0</td>
</tr>
<tr>
<td>E</td>
<td></td>
<td>60.1 to 75.0</td>
</tr>
<tr>
<td>E-</td>
<td></td>
<td>75.1 to 80.0</td>
</tr>
<tr>
<td>F</td>
<td>This level of delay is considered unacceptable by most drivers. This condition often occurs with oversaturation, that is when arrival flow rates exceed the capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes of such delays.</td>
<td>greater than 80.0</td>
</tr>
</tbody>
</table>

Source:
VTA Traffic Level of Service Analysis Guidelines (June 2003), Table 2.

Adverse effects at signalized intersections can be addressed by any of the following three approaches:

- Reduce project vehicle-trips to eliminate the adverse effects and restore the intersection operations to background conditions.
- Construct improvements to the subject intersection or other roadway segments of the citywide transportation system to increase overall capacity;
- Implement a trip cap, the maximum number of daily vehicle-trips allowed to be generated by a Project, at a level that is attainable through proven means to reduce the adverse operations effects and restore the intersection operations to background conditions.

**Intersection Vehicle Queuing Analysis**

The analysis of intersection operations was supplemented with a vehicle queuing analysis at intersections where the project would add a substantial number of trips to the left-turn movements or stop-controlled approaches. The City has requested that the queuing analysis include the three study intersections listed above plus the following intersections:
• Project Driveway and Kings Row
• E. Gish Road/N. 10th Street and Old Bayshore Highway

The queuing analysis is presented for informational purposes only, since the City of San Jose has not defined a policy related to queuing. Vehicle queues were estimated using a Poisson probability distribution, which estimates the probability of “n” vehicles for a vehicle movement using the following formula:

\[ P(x=n) = \frac{\lambda^n e^{-\lambda}}{n!} \]

Where:
- \( P(x=n) \) = probability of “n” vehicles in queue per lane
- \( n \) = number of vehicles in the queue per lane
- \( \lambda \) = average # of vehicles in the queue per lane (vehicles per hr per lane/signal cycles per hr)

The basis of the analysis is as follows: (1) the Poisson probability distribution is used to estimate the 95th percentile maximum number of queued vehicles for a particular left-turn movement; (2) the estimated maximum number of vehicles in the queue is translated into a queue length, assuming 25 feet per vehicle; and (3) the estimated maximum queue length is compared to the existing or planned available storage capacity for the left-turn movement. This analysis thus provides a basis for estimating future turn pocket storage requirements at intersections.

For signalized intersections, the 95th percentile queue length value indicates that during the peak hour, a queue of this length or less would occur on 95 percent of the signal cycles. Or, a queue length larger than the 95th percentile queue would only occur on 5 percent of the signal cycles (about 3 cycles during the peak hour for a signal with a 60-second cycle length). Thus, turn pocket storage designs based on the 95th percentile queue length would ensure that storage space would be exceeded only 5 percent of the time for a signalized movement. Vehicle queuing at unsignalized intersections are evaluated based on the delay experienced at the specific study turn movement.

**Report Organization**

The remainder of this report is divided into three chapters. Chapter 2 describes existing transportation conditions including VMT of the existing land uses in the proximity of the project, the existing roadway network, transit service, bicycle and pedestrian facilities. Chapter 3 presents the CEQA transportation analysis, including the project VMT impact analysis, mitigation measures to reduce the VMT impact, and cumulative transportation impact assessment. Chapter 4 presents the local transportation analysis including operations of study intersections, the methods used to estimate project-generated traffic, the project’s effects on the transportation system, and an analysis of other transportation issues including site access and circulation, parking, transit services, bicycle and pedestrian facilities, and vehicle queuing. Chapter 5 presents the conclusions of the traffic study and lists all the recommendations.
2. Existing Conditions

This chapter describes the existing conditions of the transportation system within the vicinity of the project. It presents the vehicle miles traveled (VMT) of the existing land uses in the proximity of the project and describes transportation facilities in the vicinity of the project site, including the roadway network, transit service, and pedestrian and bicycle facilities. The analysis of existing intersection operations is included as part of the Local Transportation Analysis (Chapter 4).

VMT of Existing Land Uses

To determine whether a project would result in CEQA transportation impacts related to VMT, the City has developed the San Jose VMT Evaluation Tool (sketch tool) to streamline the analysis for residential, office, and industrial projects. Based on the sketch tool and the project’s APN, the existing VMT for employment uses in the project vicinity is 15.19 per employee. The current regional average VMT for employment uses is 14.37 per employee (see Table 1). Therefore, the VMT levels of existing uses for employment in this project vicinity are greater than the average VMT levels for employment. Chapter 3 presents the sketch tool summary report for the project.

Existing Roadway Network

Regional access to the project site is provided by Interstate 880 (I-880) and US 101. Local access to the project site is provided via Oakland Road, Old Bayshore Highway, Gish Road, Industrial Avenue, and Kings Row. These facilities are described below.

I-880 is a north-south freeway that extends through the Bay Area, connecting Oakland to San Jose. Near the vicinity of the project site, I-880 is eight lanes wide with three mixed-flow lanes and one HOV lane in each direction. I-880 provides site access via a full interchange at Old Bayshore Highway.

US 101 is a ten-lane freeway (four mixed-flow lanes and one HOV lane in each direction) in the vicinity of the site. US 101 extends northward through San Francisco and southward through Gilroy. Access to and from the site is provided via full interchanges at Oakland Road and I-880.

Oakland Road is a six-lane, north-south arterial street that services the surrounding commercial and residential uses. In the immediate vicinity of the proposed project, Oakland Road contains three mixed-flow lanes in each direction with a center turn lane. Oakland Road transitions from 13th Street at Hedding Street, and extends north to Montague Expressway, where it transitions into Main Street. Oakland Road provides access to the project site via its connection to Gish Road.
Old Bayshore Highway is an east-west arterial street extending from 13th Street and Commercial Street to Zanker Road. East of 13th Street, Old Bayshore Highway transitions to Commercial Street. Old Bayshore Highway is a four-lane roadway. It provides access to the proposed project via Gish Road.

Gish Road is a two-lane roadway that extends westward from Oakland Road and then turns southward to intersect Old Bayshore Highway near I-880. Gish Road provides access to the project site via its intersection with Industrial Avenue.

Industrial Avenue is a two-lane roadway that extends northward from Gish Road to a dead-end where the existing project driveway is located.

Kings Row is a two-lane roadway that extends eastward from Industrial Avenue to an industrial park with no through access. Kings Row would provide direct access to the proposed project via a proposed new site driveway.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. In the vicinity of the project site, sidewalks exist only on the west (southbound) side of Industrial Avenue from Gish Road to Kings Row, while sidewalks exist along both sides of Industrial Avenue between Kings Row and the project site. Sidewalks are also present along both sides of Gish Road for a distance of about 700 feet west of Oakland Road. Beyond that point, sidewalks continue along the north (westbound) side of Gish to I-880 with a short gap in the sidewalk between Industrial Avenue and the railroad tracks. There are no sidewalks along the segment of Gish Road between I-880 and Old Bayshore Highway or along Old Bayshore Highway in the vicinity of Gish Road. Oakland Road has sidewalks along both sides of the street in the vicinity of the project site except for a short sidewalk gap on the west (southbound) side of the street between the railroad tracks and Charles Street. Marked crosswalks with pedestrian signal heads and push buttons are provided on the south leg and west leg of the Oakland Road and Gish Road intersection.

The overall network of sidewalks and crosswalks in the study area provides limited connectivity. There are gaps in the pedestrian routes between the project site and the nearest bus route on Oakland Road. Furthermore, there are few commercial services (restaurants, banks, shops, etc), parks or trails within walking distance of the project site.

Class II bikeways are located along several streets within the study area. Class II bikeways are striped bike lanes on roadways that are marked by signage and pavement markings. Within the vicinity of the project site, striped bike lanes are present on the following roadway segments:

- Oakland Avenue, between Gish Road and Commercial Street
- Old Bayshore Highway, between 10th Street and Zanker Road
- Berger Drive, between Oakland Road and Gish Road

In addition, buffered bike lanes with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane are present on the following roadway segment:

- Oakland Avenue, Gish Road to Montague Expressway
Although Industrial Road does not provide bike lanes and is not designated as bike route, due to its low traffic volumes and low speed, it is conducive to bicycle usage. The existing bicycle facilities within the study area are shown on Figure 4.

**Existing Transit Service**

Existing transit services near the project site are provided by the Santa Clara Valley Transportation Authority (VTA) (See Figure 5). The project site is not accessible by transit since there are no transit routes within normal walking distance (one-quarter mile). The study area has one local bus route, Route 66. The nearest bus stop is located approximately 0.6 mile from the project site at the intersection of Gish Road and Oakland Road. Route 66 runs from Kaiser Permanente Medical Center in South San Jose to Milpitas from 5:14 AM to 12:08 AM with a headway of 15 to 20 minutes during peak commute hours.

**Existing Intersection Lane Configurations**

The existing lane configurations at the study intersections were determined by observations in the field and are shown on Figure 6.

**Observed Existing Traffic Conditions**

Traffic conditions in the field were observed in order to identify existing operational deficiencies and to confirm the accuracy of calculated intersection levels of service. The purpose of this effort was (1) to identify any existing traffic problems that may not be directly related to vehicle-miles traveled, and (2) to identify any locations where the local transportation analysis does not accurately reflect existing traffic conditions. The local transportation analysis appears to accurately reflect actual existing traffic conditions. Field observations showed that some operational problems currently occur during the peak commute hours. These issues are described below.

**I-880 Northbound On/Off Ramps and Gish Road**

Gish Road experiences long vehicle queues in both the AM and PM peak hour. The I-880 Northbound off-ramp is uncontrolled, while the northbound and westbound Gish Road approaches are stop controlled. Due to the uncontrolled off-ramp, many cars have to wait for a gap in traffic to either continue travelling along Gish Road or to enter the I-880 on-ramp. In the PM peak hour, the queue on northbound Gish Road occasionally extends into the 10th Street/Old Bayshore Highway intersection, but the queue usually clears within two cycles. In the AM peak hour, the northbound queue more frequently extends into the 10th Street/Old Bayshore Highway intersection. Similarly, the right-turn queue on westbound Gish Road often extends past the Industrial /Gish intersection in the AM peak hour.

**Industrial Avenue and Gish Road**

In the PM peak hour, the Gish Road and Industrial Avenue intersection operates without any major delays or long queues. However, in the AM peak hour, there are often queues in both directions on Gish Road at the intersection of Industrial Avenue due to vehicles waiting to make a left turn from eastbound Gish Road onto Berger Drive and vehicles waiting to make a left turn from westbound Gish Road at the I-880 Northbound Off Ramp. This makes it difficult for vehicles to turn left onto Gish Road from Industrial Avenue. As a result, there were long queues of 7 to 10 vehicles on the southbound Industrial Avenue approach to Gish Road.

The intersection of Oakland Road and Gish Road operates without any major operational problems.
Figure 4
Existing Bicycle Facilities

LEGEND
- Site Location
- Study Intersection
- Project Driveway
- Class II Bike Lanes
Figure 5
Existing Transit Services
Figure 6
Existing Lane Configurations
3. **CEQA Transportation Analysis**

This chapter describes the CEQA transportation analysis, including the VMT threshold of significance, the project-level VMT impact analysis results, mitigation measures to reduce a VMT impact, and the cumulative transportation impact analysis used to determine consistency with the City's General Plan.

**Project-Level VMT Impact Analysis**

**Project VMT**

The project-level impact analysis under CEQA uses the VMT metric to evaluate a project’s transportation impacts by comparing against the VMT thresholds of significance as established in the Transportation Analysis Policy. The threshold of significance for industrial employment uses is the existing regional average VMT level of 14.37 per employee (see Table 1).

Based on the City of San Jose’s VMT Evaluation Tool, the project as currently proposed is estimated to generate a total of 14.92 VMT per employee. The project-generated VMT per employee is lower than the average VMT per employee in this area (15.19) due to the end of trip bike facilities proposed by the project. The project-generated VMT per employee (14.92) is greater than the City's threshold of 14.37 VMT per employee.

**Project Impacts and Mitigation Measures**

**Project Impact:** The VMT generated by the project (14.92 VMT per employee) would exceed the threshold of 14.37 VMT per employee; therefore, the project would result in a significant transportation impact on VMT, and mitigation measures are required to reduce the VMT impact. According to the *Transportation Analysis Handbook*, projects located in areas where the existing VMT is above the established threshold (such as the project study area) are referred to as being in “high-VMT areas”, and projects in high-VMT areas are required to include a set of VMT reduction measures that would reduce the project VMT to the extent possible.

**Mitigation Measures:** Based on the four VMT reduction strategy tiers included in the sketch tool, it is recommended the project implement the following mitigation measures to reduce the significant VMT impact:

- **Transportation Demand Management (TDM) Programs** – The project shall implement bike parking, a shower and changing room, commute trip reduction marketing and education programs, and ridesharing programs. These TDM measures are described in more detail below.
• **Bike Parking.** The project shall implement Long-term bike parking (1 space per 10 full-time employees per San Jose’s Zoning Code Section 20.90.060B).

• **Showers and Changing Room.** The project shall implement one shower and changing room per San Jose Zoning Code Section 20.90.066A

• **Commute Trip Reduction Marketing and Education Programs.** The project shall implement marketing/educational campaigns that promote the use of transit, shared rides, and travel through active modes. An on-site TDM coordinator shall distribute information about alternative commute options through new employee orientations, special promotional events, and publications.

• **Ride-Sharing Programs.** An on-site TDM coordinator shall organize a program to match individuals interested in carpooling who have similar commutes. This measure, which shall apply to 100 percent of employees, promotes the use of carpooling and reduces the number of drive-alone trips.

The above-list TDM measures would reduce the project VMT to 13.25 per employee, equivalent to an 11 percent reduction in VMT, which would cause the project VMT to fall below the City’s threshold and reduce the project impact to a less than significant level.

Figure 7 shows the VMT evaluation summary report generated by the City of San Jose’s VMT Evaluation Tool.

**Cumulative VMT Impact Analysis**

Projects must demonstrate consistency with the *Envision San José 2040 General Plan* to address cumulative impacts. Consistency with the City’s General Plan is based on the project’s density, design, and conformance to the General Plan goals and policies. If a project is determined to be inconsistent with the General Plan, a cumulative impact analysis is required as part of the City’s *Transportation Analysis Handbook*.

The project site is located within the Heavy Industrial zone. Heavy Industrial developments can develop at a FAR of up to 1.5. Based on the existing lot area of 477,580 square feet, the project is allowed to develop up to 716,370 square feet (477,580 s.f. x 1.5 FAR = 716,370 s.f.).

The project as proposed would construct a light industrial, one-story building with mezzanine comprised of 185,500 gross square feet of warehouse space. This equates to a FAR of 0.39 (185,500 s.f. + 477,580 s.f. = 0.39).

The project is consistent with the General Plan goals and policies for the following reasons:

- The project site is near bicycle lanes on Oakland Road.
- The project would provide bicycle parking on the ground level near the project entrance and a shower to encourage employee use of alternative transportation modes.
- The project would implement a TDM plan that includes ride-sharing programs aimed at reducing VMT.
- The project promotes economic development and completion of the General Plan transportation network through the US-101/Mabury Transportation Development Policy (TDP)
- The project maintains, enhances, and develops the employment lands within an identified key employment area (the East Gish and Mabury industrial area) (FS-4.2)
**PROJECT:**

Name: 1605 Industrial Avenue Warehouse Project  
Location: 1605 Industrial Avenue  
Parcel: 23730015  
Parcel Type: Suburb with Multifamily Housing  
Tool Version: 3/14/2018  
Date: 12/13/2018  
Proposed Parking: Vehicles: 85  
Bicycles: 10

**LAND USE:**

<table>
<thead>
<tr>
<th>Residential</th>
<th>Percent of All Residential Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Family</td>
<td>0 DU</td>
</tr>
<tr>
<td>Multi Family</td>
<td>0 DU</td>
</tr>
<tr>
<td>Subtotal</td>
<td>0 DU</td>
</tr>
<tr>
<td>Office</td>
<td>0 KSF</td>
</tr>
<tr>
<td>Retail</td>
<td>0 KSF</td>
</tr>
<tr>
<td>Industrial</td>
<td>185.5 KSF</td>
</tr>
</tbody>
</table>

**VMT REDUCTION STRATEGIES**

**Tier 1 - Project Characteristics**

Increase Residential Density

- Existing Density (DU/Residential Acres in half-mile buffer): 8
- With Project Density (DU/Residential Acres in half-mile buffer): 8

Increase Development Diversity

- Existing Activity Mix Index: 0.86
- With Project Activity Mix Index: 0.85

Integrate Affordable and Below Market Rate

- Extremely Low Income BMR units: 0 %
- Very Low Income BMR units: 0 %
- Low Income BMR units: 0 %

Increase Employment Density

- Existing Density (Jobs/Commercial Acres in half-mile buffer): 15
- With Project Density (Jobs/Commercial Acres in half-mile buffer): 16

**Tier 2 - Multimodal Infrastructure**

**Tier 3 - Parking**

End of Trip Bike Facilities

- Bicycle Parking Spaces Provided by Project: 10 spaces
- Project Provides Additional End-of-Trip Facilities Beyond Parking?: Yes

**Tier 4 - TDM Programs**

Commute Trip Reduction Marketing/ Education

- Percent of Eligible Employees: 100%

Ride-Sharing Programs

- Percent of Eligible Employees: 100%
EMPLOYMENT ONLY

The tool estimates that the project would generate per non-industrial worker VMT above the City’s threshold and per industrial worker VMT below the City’s threshold.

![Bar chart showing VMT comparisons between existing and tiered scenarios](chart.png)

- **Existing VMT**: 15.19 VMT per worker
- **Tier 1+2+3**: 14.92 VMT per worker
- **Tier 1+2+3+4**: 13.25 VMT per worker

**Key Values**
- **Estimated Maximum Reduction Possible**: 12.15
- **Office Threshold**: 12.22
- **Industrial Threshold**: 14.37
Therefore, based on the project description, the proposed project would be consistent with the *Envision San José 2040 General Plan*. The project would be considered part of the cumulative solution to meet the General Plan’s long-range transportation goals and would result in a less-than-significant cumulative impact.
4. Local Transportation Analysis

This chapter describes the local transportation analysis including the method by which project traffic is estimated, intersection operations analysis for background, background plus project, and cumulative scenarios, any adverse effects on study intersections caused by the project, intersection vehicle queuing analysis, freeway ramp analysis, site access and on-site circulation review, effects on bicycle, pedestrian, and transit facilities, and parking.

Intersection Operations Analysis

The intersection operations analysis is intended to quantify the operations of San Jose intersections and to identify potential negative effects due to the addition of project traffic. A potential adverse effect on a study intersection in San Jose is not a CEQA measure. Information required for the intersection operations analysis related to project trip generation, trip distribution, and trip assignment are presented in this section. Intersection analysis methodology, standards, and significance criteria are described in Chapter 1.

Project Trip Estimates

The magnitude of traffic produced by a new development and the locations where that traffic would appear are estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. In determining project trip generation, the magnitude of traffic entering and exiting the site is estimated for the AM and PM peak hours. As part of the project trip distribution, the directions to and from which the project trips would travel are estimated. In the project trip assignment, the project trips are assigned to specific streets and intersections. These procedures are described below.

Trip Generation

Through empirical research, data have been collected that indicate the amount of traffic that can be expected to be generated by common land uses. The standard trip generation rates can be applied to help predict the future traffic increases that would result from a new development. The standard trip generation rates are published in the Institute of Transportation Engineers (ITE) Trip Generation Manual.

Project trip generation was estimated by applying to the size and uses of the development the appropriate trip generation rates obtained from the ITE Trip Generation Manual, 10th Edition (2017). The average trip generation rates for warehouse (Land Use 150) was applied to the project. Based on the ITE rates for warehouse, a project of this size is estimated to generate a total of 323 gross daily vehicle trips, with 32 trips occurring during the AM peak hour and 35 trips occurring during the PM peak hour (see Table 3).
Table 3
Project Trip Generation Estimates

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Size</th>
<th>Daily Rate</th>
<th>Daily Trips</th>
<th>AM Peak Hour Rate</th>
<th>AM Peak Hour Trip</th>
<th>PM Peak Hour Rate</th>
<th>PM Peak Hour Trip</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposed Uses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warehouse</td>
<td>185,500 s.f.</td>
<td>1.74</td>
<td>323</td>
<td>0.17</td>
<td>25</td>
<td>7</td>
<td>32</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Existing Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specialty Truck Parts Retailer</td>
<td>(37,615) s.f.</td>
<td>5.32</td>
<td>-200</td>
<td>0.56</td>
<td>-18</td>
<td>-3</td>
<td>-21</td>
</tr>
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<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Net Project Trips</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>123</td>
<td>7</td>
<td>4</td>
<td>11</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

1 Rates per 1,000 s.f. (square feet) based on average rate for land use #150 (Warehousing) from the ITE Trip Generation Manual, 10th Edition. Existing use trip generation based on driveway counts.
2 The local transportation analysis evaluates an earlier project description that was slightly larger than the currently proposed project (180,150 s.f.). Thus, the analysis is conservative since the currently proposed project would generate 10 fewer daily trips and 1 fewer trip during the AM and PM peak hours than shown above.
3 Existing use trips based on peak-hour driveway counts conducted on 9/25/18. Daily trips estimated based on peak-hour trips and business hours.

Trip Adjustments and Reductions

The trip generation of the existing use, Specialty Truck Parts Inc., can be credited against the trips generated by the proposed warehouse development. The existing site driveway was counted during the peak commute hours on September 25, 2018 to quantify the trip generation of the existing use. The daily trips associated with the existing use were estimated based on the peak-hour trips and the business hours. The existing use is estimated to generate 200 daily vehicle trips with 21 trips occurring in the AM peak hour and 23 trips in the PM peak hour.

Note that the above project trip generation estimates do not reflect the reduction in trips expected to occur due to the implementation of the recommended TDM Programs.

Net Project Trips

After applying the existing use trip credits, the project is expected to generate 123 net new daily vehicle trips, with 11 new trips occurring during the AM peak hour and 12 new trips occurring during the PM peak hour (See Table 3).

Trip Distribution and Trip Assignment

The trip distribution pattern for the project was developed based on existing travel patterns on the surrounding roadway system and the locations of complementary land uses. The peak-hour vehicle trips generated by the project were assigned to the roadway network in accordance with the trip distribution pattern, with an emphasis on freeway access and project driveway location. Figure 8 shows the trip distribution pattern and Figure 9 shows the net trip assignment of project traffic on the local transportation network.
Figure 8
Project Trip Distribution
* Industrial Avenue driveway volumes reflect the net increase/decrease compared to existing site driveway volumes. Gross project trips at the Industrial Avenue driveway would be 16(4) inbound and 6(17) outbound.

Figure 9
Net Project Trip Assignment
Traffic Volumes Under All Scenarios

Existing Traffic Volumes
Available traffic data were obtained from the City of San Jose. New peak-hour counts were collected in December of 2018 for intersections where the available data was not available or outdated (more than two years old). The existing peak-hour intersection volumes are shown in Figure 10. Intersection turning-movement counts conducted for this analysis are presented in Appendix A.

Background Traffic Volumes
Background peak-hour traffic volumes were estimated by adding to existing traffic volumes the trips generated by nearby approved but not yet completed or occupied projects (see Figure 11). Approved project trips and approved project information was obtained from the City of San Jose (see Appendix B).

Background Plus Project Traffic Volumes
Project trips were added to background traffic volumes to obtain background plus project traffic volumes (see Figure 12).

Cumulative Traffic Volumes
Cumulative traffic volumes reflect future traffic volumes with the proposed project as well as expected traffic growth through the year 2020. Cumulative traffic volumes were estimated by adding to background plus project traffic volumes the traffic generated by potential (but not yet approved) developments. Because there are no proposed projects in the vicinity, the traffic associated with potential future developments was estimated based on a growth rate of 1.2% per year. The cumulative traffic volumes at study intersections are shown on Figure 13.

The approved trips, proposed project trips, pending project (future growth) trips, and traffic volumes for all components of traffic are tabulated in Appendix C.
LEGEND

- Site Location
- Study Intersection
- Project Driveway

XX(XX) = AM(PM) Peak-Hour Traffic Volumes

Figure 10
Existing Traffic Volumes
Background Plus Project Traffic Volumes

LEGEND

= Site Location
=X= Study Intersection
= Project Driveway
XX(XX) = AM(PM) Peak-Hour Traffic Volumes
Figure 13
Cumulative Traffic Volumes
**Intersection Traffic Operations**

Levels of service at the signalized study intersection were evaluated against the standards of the City of San Jose. The results of the analysis show that the signalized study intersection currently operates at an acceptable level of service (LOS D or better) during the AM and PM peak hours of traffic. The addition of trips associated with approved developments included under background conditions would cause the intersection delay to decrease slightly compared to existing conditions. This occurs because the intersection delay is a weighted average of all intersection movements. When traffic is added to movements with delays lower than the average intersection delay, the average delay for the entire intersection can decrease.

The signalized study intersection would continue to operate at an acceptable level of service (LOS D or better) under all future scenarios during the AM and PM peak hours (see Table 4). Thus, the project would not have an adverse effect on traffic operations at the signalized study intersection. The intersection level of service calculation sheets are included in Appendix D.

The unsignalized study intersections are not subject to a level of service standard, and thus were evaluated only for operations.

**Table 4**

**Intersection Level of Service Summary**

<table>
<thead>
<tr>
<th>#</th>
<th>Intersection</th>
<th>Existing</th>
<th>Background</th>
<th>Background + Project</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 Gish Road and Oakland Road</td>
<td>AM</td>
<td>18.3</td>
<td>B</td>
<td>18.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PM</td>
<td>16.0</td>
<td>B</td>
<td>15.5</td>
</tr>
</tbody>
</table>

**Notes:**
- **Bold** indicates a substandard level of service.
- **Bold** indicates an adverse effect on intersection operations caused by the project.

**US 101/Oakland/Mabury Transportation Development Policy**

The City of San Jose has identified operational problems along the Oakland Road corridor at the US 101 interchange, which are due primarily to the capacity constraints of the interchange. As a result, the City has identified two key capital improvement projects: 1) modification of the US 101/Oakland Road interchange, including improvements to the Oakland Road/Commercial Street intersection, and 2) construction of a new US 101/Mabury Road interchange. To fund these interchange improvements, the City has developed the US 101/Oakland/Mabury Transportation Development Policy (TDP).

As part of the Policy, a fee to fund the planned interchange improvements has been adopted. Any project that would add traffic to the US 101/Oakland Road interchange is required to participate in the TDP program. The fee for the US 101/Oakland/Mabury TDP is based on the number of PM peak hour vehicular trips that a project would add to the US 101/Oakland Road interchange. The TDP traffic impact fee is currently $38,623 per each new PM peak hour vehicle trip that would be added to the US 101/Oakland Road interchange. The signalized intersections of Oakland Road/US 101 (South), Oakland Road/US 101 (North), and Oakland Road/Commercial Street make up the US 101/Oakland Road interchange.
Based on the net project trip assignment, it is estimated that the proposed project will add one vehicle trip to the US 101/Oakland Road interchange during the PM peak hour. Therefore, the project will be required to pay the US 101/Oakland/Mabury TDP traffic impact fee.

**Site Access and On-Site Circulation**

The site access and circulation evaluations for the proposed warehouse project are based on the current site plan (dated January 8, 2019) prepared by RGA, Office of Architectural Design. (see Figure 2). Site access was evaluated to determine the adequacy of the site’s driveways with regard to the following: traffic volume, delays, vehicle queues, geometric design, and corner sight distance. Figure 2 also includes the surface parking lot. On-site vehicular circulation was reviewed in accordance with generally accepted traffic engineering standards and transportation planning principles.

**Project Driveway Design**

Vehicular access to the project site would be provided via two driveways: one on Industrial Avenue and one on Kings Row, both located near the southern edge of the project site. The driveway on Kings Row measures approximately 40 feet and will serve large vehicles, giving direct access to loading doors and container parking. The driveway on Industrial Avenue, which provides direct access to the employee and visitor parking lot, measures approximately 30 feet and will serve all other vehicles. The City requires a minimum width of 26 feet for all two-way driveways.

**Nearby Driveways**

The existing project driveway on Industrial Avenue is at the end of a dead-end street. Thus, vehicles entering and exiting this site driveway merely continue straight and do not interfere with turning movements at nearby driveways. The proposed new project driveway on Kings Row is located immediately adjacent to a long curb cut that extends nearly the entire frontage of the neighboring property, which is currently occupied by San Jose Diesel Electric. There are also driveways approximately 40 feet to the west and directly opposite the proposed site driveway. The existing traffic volumes on Kings Row are extremely low (less than 100 vehicles per hour in each direction), thus the proximity of the proposed project driveway to nearby driveways is not expected to negatively affect traffic operations. Therefore, the driveway locations as proposed are adequate.

**Sight Distance**

The project access points should be free and clear of any obstructions to provide adequate sight distance, thereby ensuring that exiting vehicles can see pedestrians on the sidewalk and other vehicles traveling on adjacent roadways. Any landscaping and signage should be located in such a way to ensure an unobstructed view for drivers exiting the site.

Adequate sight distance (sight distance triangles) should be provided at the proposed new project driveway on Kings Row in accordance with Caltrans standards. Sight distance triangles should be measured approximately 10 feet back from the traveled way. Providing the appropriate sight distance reduces the likelihood of a collision at a driveway or intersection and provides drivers with the ability to exit a driveway and locate sufficient gaps in traffic. The minimum acceptable sight distance is often considered the Caltrans stopping sight distance. Sight distance requirements vary depending on the roadway speeds. For outbound traffic onto Kings Row, which is subject to a speed limit of 25 mph, the Caltrans stopping sight distance is 150 feet (based on a design speed of 25 mph).

There are no visual obstructions on the east side of the proposed new driveway on Kings Row. To the west of the proposed new driveway there is a slatted chain-link fence that extends to within approximately six feet of the back of the sidewalk. Based on observations in the field, vehicles exiting
the project driveway on Kings Row will be able to see approaching traffic on eastbound Kings Row at least as far away as at the Industrial Ave/Kings Row intersection, which is approximately 200 feet to the west. Therefore, it can be concluded that the project driveway would meet the Caltrans minimum stopping sight distance standards.

**Project Driveway Operations**

Industrial Avenue is an undivided two-lane road that provides full access into the existing driveway. Cars would be able to pull straight into and out of the lot. Kings Row is also an undivided two-lane road that provides full access into and out of the lot. Inbound and outbound vehicles do not have any turn restrictions that require U-turns.

The gross project trips estimated to use the Industrial Avenue driveway are 16 inbound trips and 6 outbound trips during the AM peak hour, and 4 inbound trips and 17 outbound trips during the PM peak hour. Traffic entering and exiting the Industrial Avenue driveway would simply continue straight at the end of Industrial Avenue and thus would not result in any delays or queuing issues.

The project is estimated to generate 12 peak-hour truck trips at the proposed new site driveway on Kings Row (9 inbound and 3 outbound during the AM peak hour and 3 inbound and 9 outbound during the PM peak hour). Because the existing traffic volumes on Kings Row are extremely low, delays at this site are expected to be minimal. However, trucks attempting to turn left into the site may temporarily stop in the through lane while waiting for a gap in the opposing (westbound) traffic flow. The potential for queuing on Kings Row is presented below in the intersection queuing analysis.

**On-Site Circulation**

On-site vehicular circulation was reviewed in accordance with the City of San Jose Zoning Code and generally accepted traffic engineering standards. In general, the current proposed site plan would provide vehicle traffic with adequate connectivity through the parking areas. The project would provide 90-degree parking stalls throughout the surface lot. The City’s standard minimum width for two-way drive aisles is 26 feet wide where 90-degree parking is provided. This allows sufficient room for vehicles to back out of the parking spaces. According to the current site plan, the two-way drive aisles with parking available on either side are 26 feet wide throughout the parking areas. Therefore, the current site plan adheres to the City’s standards.

**Parking Stall Dimensions**

The City’s off-street parking design standard for 90-degree uniform parking stalls is 8.5 feet wide by 17 feet long. The site plan shows that all parking stalls will be 9 feet wide by 18 feet long. In addition, all accessible stalls include access aisles of 5 feet or more for van accessibility.

**Bike and Pedestrian On-Site Circulation**

The project would not include any walkways between the existing sidewalks along Industrial Avenue and the new warehouse building. However, the current site plan shows a walkway would be constructed adjacent to the west side of the proposed Kings Row driveway that would connect to bike racks and the building entrance where the office would be located. In addition, a walkway is shown adjacent to the accessible parking spaces leading to two building entrances.

Bicycle parking would be located where the Kings Row driveway connects to the employee parking lot on the southside of the building, near the main entrance (see Figure 2). This would allow bicyclists to enter/leave the project site using the project driveway. Providing convenient bike parking would help create a pedestrian- and bicycle-friendly environment and encourage bicycling by employees.
Truck Access and Circulation

Number of Loading Spaces and Truck Access

According to the City of San Jose Zoning Regulations, the project as proposed is required to provide ten off-street freight loading spaces. Below are the City’s requirements.

- Buildings intended for use by a manufacturing plant, storage facility, warehouse facility, goods display facility, retail store, wholesale store, market, hotel, hospital, mortuary, laundry, dry cleaning establishment, or other use or uses similarly requiring the receipt or distribution by vehicles or trucks of material or merchandise with at least a 10,000 s.f. of total GFA shall provide a minimum of one off-street loading space, plus one additional loading space every 20,000 s.f. of total GFA.

The project is proposing to provide 28 off-street loading dock spaces, located on the east side of the new warehouse building (see Figure 2). Therefore, the proposed project would conform to the City’s zoning requirements. Access to the off-street loading spaces would be provided via the project driveway on Kings Row.

The current project site plan was reviewed for truck access to and from the loading docks using truck turning-movement templates for a WB-65 truck type, which represent interstate semitrailers. The current site plan shows an adequate driveway width and turning radius based on the turning templates for a WB-65 truck.

Loading Space Dimensions

Chapters 20.70.460 and 20.90.420 of the City’s Zoning Regulations designates that each off-street loading space shall be no less than 10 feet wide by 30 feet long by 15 feet high, exclusive of driveways for ingress and egress and maneuvering areas. As previously mentioned, off-street loading dock spaces are shown along the eastern side of the proposed warehouse building.

The dimensions of the commercial off-street loading space measures 13 feet wide by 56 feet long, with no height restriction and therefore, the project site plan meets the City’s minimum loading space dimensions. Figure 14 shows the turning paths created using vehicle turning movement templates for a typical WB-65 truck.

Garbage Collection

The current site plan shows the trash enclosure to be located near the southeast corner of the project site. Garbage trucks will be able to enter from the Kings Row driveway and can either travel around the building or make a U-turn behind the loading dock spaces to exit from the Kings Row driveway.

Emergency Vehicle Access

Emergency vehicles access (EVA) would be provided via the project driveways on Kings Row and Industrial Avenue. The City of San Jose Fire Code requires driveways to provide at least 20 feet for fire access. The project driveway would measure approximately 26 feet wide, and therefore would comply with the City’s fire code.
1605 Industrial Avenue Transportation Analysis

Figure 14
Turning Path for a Typical WB-65 Truck
Construction Activities

Typical activities related to the construction of any development could include lane narrowing and/or lane closures, sidewalk and pedestrian crosswalk closures, and bike lane closures. Because the proposed new warehouse building would be approximately 150 feet from the nearest public right of way, the project is not expected to require any lane closures or sidewalk closures. In the event of any type of closure, clear signage (e.g., closure and detour signs) must be provided to ensure vehicles, pedestrians and bicyclists are able to adequately reach their intended destinations safely. The project would be required to submit a construction management plan for City approval that addresses schedule, closures/detours, staging, parking, and truck routes.

Pedestrian volumes along Industrial Avenue and Kings Row are quite low. Therefore, any necessary sidewalk closures/pedestrian detours would have very little effect on the overall pedestrian circulation in the area. Similarly, bicycle volumes along Industrial Avenue and Kings Row are quite low, therefore effects on bicycle facilities during construction are expected to minimal.

Parking Supply

The City of San Jose Zoning Code (Section 20.90.060) states that warehouse uses are required to provide 1.0 parking space per 5,000 square feet of gross floor area or a fraction thereof. As currently proposed, the project would construct 180,150 gross square feet of warehouse space. Based on the City’s parking requirements and the current project description, the project would be required to provide 37 parking spaces for the warehouse. The proposed parking supply of 74 spaces meets the City of San Jose’s parking requirement.

Per the 2016 California Building Code (CBC) Table 11B-208.2, 4 ADA accessible spaces are required for projects with 51 to 75 parking spaces. Of the required accessible parking spaces, one van accessible space is required (Section 11B-208.2.4). The plans show a total of five accessible spaces, all located in the surface parking lot, adjacent to the southern building entrance. Of the provided ADA accessible spaces, two spaces qualify as van accessible.

Electric Vehicle Charging Stations

According to the 2016 California Building Code (CBC) Table 11B-228.3.2.1, facilities with one to four electric vehicle charging stations (EVCS) are required to provide at least one van accessible EVCS. The project meets the accessible EVCS requirement as it would provide two EVCS including one van accessible EVCS.

Clean Air Vehicles

According to the City’s Clean Air Vehicle Standards (Chapter 20.90, Table 20-215), non-residential uses with 51 to 75 parking spaces must provide 6 clean air vehicle parking spaces. The project would provide six clean air vehicle spaces meeting the City’s requirement.

Bicycle Parking

According to the City’s Bicycle Parking Standards (Chapter 20.90, Table 20-210), the project is required to provide bicycle parking for the new building at a rate of 1 bicycle parking space per 10 full-time employees. The proposed project would provide five bike racks, which would accommodate 10 bicycles. While the number of full-time employees is unknown, it is anticipated that the site would have fewer than 100 full-time employees. Thus, the number of bike parking spaces would meet the City’s requirement. However, the City’s Zoning Code requires that when bike parking is calculated per employee, all bike parking spaces must be provided in long-term bicycle spaces.
City of San Jose Long-Term and Short-Term Bicycle Parking

Long-term bicycle parking facilities are secure bicycle storage facilities for tenants of a building that fully enclose and protect bicycles and may include:

- A covered, access-controlled enclosure such as a fenced and gated area with short-term bicycle parking facilities,
- An access-controlled room with short-term bicycle parking facilities, and
- Individual bicycle lockers that securely enclose one bicycle per locker.

Short-term bicycle parking facilities are accessible and usable by visitors, guests, or business patrons and may include:

- Permanently anchored bicycle racks,
- Covered, lockable enclosures with permanently anchored racks for bicycles,
- Lockable bicycle rooms with permanently anchored racks, and
- Lockable, permanently anchored bicycle lockers.

The proposed bicycle racks are considered short-term bicycle parking spaces. The requirement for long-term bicycle parking spaces would not be met. Thus, the project site plan should be revised to ensure the project plans comply with the City’s Bicycle Parking Standards.

Motorcycle Parking

According to the City’s Motorcycle Parking Standards (Chapter 20.90, Table 20-250), the project is required to provide 1 motorcycle parking space per 10 code-required vehicle spaces. Based the current project description for the warehouse, the project is required to provide four motorcycle parking spaces.

No motorcycle parking is shown on the current site plan dated January 8, 2019. Therefore, the site plan should be revised to meet the City’s Motorcycle Parking Standards.

Intersection Queuing Analysis

The operations analysis is based on vehicle queuing for high-demand movements at intersections (see Table 5). The following left-turn movements and shared-lane approaches were examined as part of the queuing analysis for this project:

- Eastbound approach at Kings Row and the proposed project driveway
- Northbound left turn on Oakland Road and Gish Road
- Eastbound approach at Gish Road and Industrial Avenue
- Eastbound left turn at Gish Road/10th Street and Old Bayshore Highway
- Southbound left turn at I-880 NB on/off ramp and Gish Road

The estimated queue lengths based on the Poisson numerical calculations show queuing deficiencies for three of the five studied turning movements. The analysis results are discussed below.

Gish Road/10th Street and Old Bayshore Highway

At the intersection of 10th Street and Old Bayshore Highway, the eastbound left-turn movement has one left-turn lane with approximately 115 feet of queue storage, which can accommodate about 4 vehicles seeking to turn left from Old Bayshore Highway onto northbound Gish Road. Under existing conditions, there is insufficient storage in the left-turn pocket during the PM peak hour. The 95th percentile queue
length exceeds the storage length by 110 feet, or approximately 5 vehicles. The project is expected to add only one additional trip to the eastbound left-turn movement during the PM peak hour, which would not affect the projected queue length. The width of Old Bayshore Highway under I-880 overcrossing is insufficient to allow for the extension of the eastbound left-turn pocket at Gish Road.

Table 5
Queuing Analysis Summary

<table>
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<tr>
<th>Measurement</th>
<th>Gish Rd/10th St &amp; Old Bayshore Hwy</th>
<th>Project Dwy &amp; Kings Row</th>
<th>I-880 NB Ramps &amp; Gish Rd</th>
<th>Industrial Avenue and Gish Road</th>
<th>Gish Road and Oakland Road</th>
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<td>75 50</td>
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<td>180 160</td>
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Notes:
WBL = westbound left movement; NBL = northbound left movement; SBL = southbound left movement; EBL = eastbound left movement; EBLT/TH = eastbound shared left-turn and through movement

$^1$ Vehicle queue calculations based on cycle length for signalized intersections and delay for unsignalized intersections.

$^2$ Assumes 25 Feet Per Vehicle Queued.

Project Driveway and Kings Row

At the intersection of the proposed new project driveway and Kings Row, the eastbound approach has one shared left-turn/through lane. The distance between the project driveway on Kings Row and Industrial Road is approximately 150 feet, which can accommodate a queue of about 6 vehicles on Kings Row without affecting the upstream intersection at Industrial Avenue and Kings Row. The project would add 9 trips during the AM peak hour and 3 trips during the PM peak hour to the eastbound left-
turn movement. The queuing analysis shows that the addition of left turns into the project driveway on Kings Row would result in a queue of no more than one vehicle. Therefore, the project is expected to have a minimal effect on traffic operations on King Row.

I-880 Northbound On/Off Ramps and Gish Road

At the intersection of the I-880 northbound on/off ramps and Gish Road, the southbound left-turn movement has a one lane with approximately 160 feet of queue storage, which can accommodate about 6 vehicles seeking to turn left from the I-880 off ramp onto eastbound Gish Road. This left-turn movement is uncontrolled while traffic on the south and east approaches is under stop control. Thus, the delay for traffic turning left from the freeway off-ramp onto Gish Road is quite low. As a result, the 95th percentile queue length is estimated to be only two vehicles during the AM and PM peak hours under both existing and background conditions. The project would add four trips during the AM peak hour and three trips during the PM peak hour to the southbound left-turn movement, which would have a negligible effect on delay and queue length on the freeway off ramp.

As discussed in Chapter 2, the westbound and northbound Gish Road approaches to the intersection of the I-880 freeway ramp experience long vehicle queues in both the AM and PM peak hours. The queue lengths cannot be analyzed using the Poisson methodology because the traffic volumes exceed the movement capacity. The project is expected to add only one vehicle trip to the northbound Gish Road approach during both the AM and PM peak hours. Thus, the project would have a negligible effect on the queue length on this approach. On the westbound Gish Road approach, the project is expected to add four vehicles during the AM peak hour and six vehicles during the PM peak hour. This would exacerbate the westbound queue length, which often extends past the Industrial Avenue/Gish Road intersection. A signal warrant analysis is presented below to determine if the peak-hour traffic volumes warrant signalization, which may alleviate the queuing issues at this intersection.

Gish Road and Industrial Road

At the intersection of Gish Road and Industrial Road, the eastbound Gish Road approach has one lane which is shared by left-turn and through traffic. The approach storage length of 550 feet is the distance to the upstream intersection at the I-880 Northbound On/Off Ramps and Gish Road. The queuing analysis shows that even with the additional left-turn movements added by the project, queues on eastbound Gish Road are expected to be no longer than three vehicles (about 75 feet). However, it should be noted that during the AM peak hour, the Gish/Industrial intersection is affected by queues that spillback from the adjacent intersections at the I-880 Ramps and at Berger Drive.

Gish Road and Oakland Road

At the intersection of Gish Road and Oakland Road, the northbound left-turn movement has a one lane of approximately 200 feet of queue storage, which can accommodate about eight vehicles seeking to turn left from Oakland Road onto westbound Gish Road. During the AM peak hour, the 95th percentile queue extends beyond the available storage by about six vehicles (150 feet) under existing conditions. The additional trips generated by approved developments in the area would increase the vehicle queue from 350 feet to 375 feet, which reflects an increase of one queued vehicle. The available left-turn storage could be increased by restriping a portion of the two-way left-turn lane as a dedicated northbound left-turn pocket. The project is expected to add one trip during the AM peak hour, which would not affect the 95th percentile queue length. During the PM peak hour, the existing left-turn storage is expected to be adequate under all scenarios.
Peak-Hour Signal Warrant

Unsignalized intersections are typically evaluated on the basis of the Peak-Hour Volume Signal Warrant, (Warrant #3 – Part B) described in the California Manual on Uniform Traffic Control Devices (MUTCD), 2014 Edition. This method makes no evaluation of intersection level of service, but simply provides an indication whether peak-hour traffic volumes are, or would be, sufficient to justify installation of a traffic signal. Intersections that meet the peak-hour warrant are subject to further analysis before determining that a traffic signal is necessary. Additional analysis may include unsignalized intersection level of service analysis and/or operational analysis such as evaluating vehicle queuing and delay. Other options such as traffic control devices, signage, or geometric changes may be preferable at unsignalized intersections based on existing field conditions.

The study evaluated the two unsignalized study intersections. The results of the signal warrant check indicate that the AM and PM peak-hour volumes at the I-880 Northbound Ramps/Gish Road intersection currently meet the signal warrant and would continue to do so under background and background plus project conditions. The project applicant should coordinate with City of San Jose staff to determine if there are any plans to signalize this intersection or install a roundabout. If so, it would be appropriate for the project to make a fair share monetary contribution toward the planned intersection improvements.

The intersection of Industrial Road and Gish Road is not expected to meet the peak-hour volume signal warrant under any study scenario. The signal warrant sheets are contained in Appendix E.

Pedestrian, Bicycle, and Transit Analysis

All new development projects in San Jose should encourage multi-modal travel, consistent with the goals of the City’s General Plan. It is the goal of the General Plan that all development projects accommodate and encourage the use of non-automobile transportation modes to achieve San Jose’s mobility goals and reduce vehicle trip generation and vehicle miles traveled. In addition, the adopted City Bike Master Plan establishes goals, policies and actions to make bicycling a daily part of life in San Jose. The Master Plan includes designated bike lanes along all City streets, as well as on designated bike corridors. In order to further the goals of the City, pedestrian and bicycle facilities should be encouraged with new development projects.

The City’s General Plan identifies both walk and bicycle commute mode split targets as 15 percent or more for the year 2040. This level of pedestrian and bicycle mode share may not be achievable by this project given the industrial nature of the project, the limited pedestrian, bicycle, and transit facilities in the project vicinity, and the lack of complementary land uses within a reasonable walking or biking distance. Nevertheless, the project should seek to encourage employees to use active modes of transportation to the extent possible.

Pedestrian Facilities

The overall network of sidewalks and crosswalks in the study area provides limited connectivity. There are gaps in the pedestrian routes between the project site and the nearest bus route on Oakland Road. The project applicant should provide a fair share monetary contribution toward the future improvements to pursue the construction of concrete trackways and sidewalks on the north and south sides of Gish Road from Industrial Avenue across the tracks. The future improvements would be coordinated between the City and Union Pacific Railroad. These improvements would facilitate pedestrian travel between the project site and the nearest bus route on Oakland Road.
Bicycle Facilities

There are several bike facilities in the immediate vicinity of the project site (see Chapter 2 for details). The City of San Jose 2020 Bike Plan has identified objectives for the expansion of bicycle facilities in the vicinity of the project site including the planned addition of Class II bike lanes along Gish Road between Old Bayshore Highway and Oakland Road. The planned bike lanes on Gish Road would connect to existing bikeways on Oakland Road, Old Bayshore Highway, and 10th Street enhancing the bicycle network and encouraging employees of the proposed project to bike to and from work.

Transit Services

The project site is not accessible by transit since there are no transit routes within normal walking distance (one-quarter mile). The study area has one local VTA bus route, Route 66, which runs from South San Jose to Milpitas. The nearest bus stop is located approximately 0.6 mile from the project site at the intersection of Gish Road and Oakland Road. Phase I of VTA’s BART Silicon Valley Extension is expected to begin passenger service in 2019. In order to connect with BART at the new Milpitas and Berryessa Stations, VTA is completely redesigning its transit network to increase overall ridership and improve cost-effectiveness as specified in VTA’s FY 18-19 Transit Service Plan (Next Network). Route 66 will be rerouted to serve the Milpitas BART Station instead of the Great Mall Transit Center. In addition, the service frequency would be upgraded to 15-minutes during both commute periods and the midday hours. Thus, the planned transit service will provide improved transit options for employees at the project site including a new connection to BART. The new transit trips generated by the project are not expected to create demand in excess of the transit service that is currently planned.

An evaluation of the effects of project traffic on transit vehicle delay for Route 66, which is the only route that travels through the study intersections, also was completed. The analysis utilizes information produced by the intersection level of service analysis. The analysis shows that the project would cause a negligible increase in delay (less than one second) to busses on Route 66. (see Table 6). The VTA has not established policies or significance criteria related to transit vehicle delay. Thus, this data is presented for informational purposes only.

Table 6
Transit Delay Analysis

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<th>Bus Route</th>
<th>Approx. Travel Time (^{1}) (\text{min} / \text{sec})</th>
<th>Background Intersection(^{2}) (sec)</th>
<th>Background Plus Project Intersection(^{2}) (sec)</th>
<th>Change in Delay (sec)</th>
<th>% Change</th>
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<td>Northbound AM</td>
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<td>4.2</td>
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<tr>
<td>Northbound PM</td>
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<td>0.0%</td>
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<tr>
<td>Southbound AM</td>
<td>15 / 900</td>
<td>27.9</td>
<td>28.0</td>
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<td>Southbound PM</td>
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Notes:
1. Travel time between the Civic Center Light Rail Station and the Oakland/Brokaw intersection is based on VTA’s bus schedule.
2. Represents the delay for northbound and southbound through traffic at the Oakland/Gish intersection.
5. Conclusions

The purpose of the traffic study was to evaluate the potential impacts of the project in accordance with the standards set forth by the City of San Jose. Based on the City of San Jose’s Transportation Analysis Policy and Transportation Analysis Handbook 2018, the Transportation Analysis (TA) report for the project includes a CEQA transportation analysis (TA) and a local transportation analysis (LTA). The CEQA transportation analysis comprises an evaluation of Vehicle Miles Traveled (VMT). The LTA supplements the CEQA transportation analysis by identifying transportation operational issues via an evaluation of weekday AM and PM peak-hour traffic conditions for one signalized intersection in the vicinity of the project site. The LTA also includes an analysis of site access, on-site circulation, parking, vehicle queuing, signal warrants at unsignalized study intersections, and effects to transit, bicycle, and pedestrian access.

CEQA Transportation Analysis

Project Vehicle Miles Traveled (VMT) Analysis

Based on the City of San Jose’s VMT Evaluation Tool, the project as currently proposed is estimated to generate a total of 14.92 VMT per employee, which exceeds City’s threshold of 14.37 VMT per employee for industrial uses. Therefore, the project would result in a significant transportation impact on VMT. The following mitigation measures are recommended to reduce the significant VMT impact:

- **Transportation Demand Management (TDM) Programs** – The project shall implement bike parking, a shower and changing room, commute trip reduction marketing and education programs, and ridesharing programs. These TDM measures are described in more detail below.

- **Bike Parking.** The project shall implement Long-term bike parking (1 space per 10 full-time employees per San Jose’s Zoning Code Section 20.90.060B).

- **Showers and Changing Room.** The project shall implement one shower and changing room per San Jose Zoning Code Section 20.90.066A

- **Commuter Trip Reduction Marketing and Education Programs.** The project shall implement marketing/educational campaigns that promote the use of transit, shared rides, and travel through active modes. An on-site TDM coordinator shall distribute information about alternative commute options through new employee orientations, special promotional events, and publications.

- **Ride-Sharing Programs.** An on-site TDM coordinator shall organize a program to match individuals interested in carpooling who have similar commutes. This measure, which shall
apply to 100 percent of all employees, promotes the use of carpooling and reduces the number of drive-alone trips.

The above-list TDM measures would reduce the project VMT to 13.25 per employee, which would cause the project VMT to fall below the City’s threshold and reduce the project impact to a less than significant level.

**CEQA Cumulative Analysis**

The project is consistent with the General Plan goals and policies for the following reasons:

- The project site is near bicycle lanes on Oakland Road.
- The project would provide bicycle parking on the ground level near the project entrance and a shower to encourage employee use of alternative transportation modes.
- The project would implement a TDM plan that includes ride-sharing programs aimed at reducing VMT.
- The project promotes economic development and completion of the General Plan transportation network through the US-101/Mabury Transportation Development Policy (TDP)
- The project maintains, enhances, and develops the employment lands within an identified key employment area (the East Gish and Mabury industrial area) (FS-4.2)

Therefore, based on the project description, the proposed project would be consistent with the Envision San Jose 2040 General Plan. The project would be considered part of the cumulative solution to meet the General Plan’s long-range transportation goals and would result in a less-than-significant cumulative impact.

**Local Transportation Analysis**

**Project Trip Generation**

Based on trip generation rates recommended by the Institute of Transportation Engineers, and after subtracting trips generated by the existing use on site, the proposed warehouse project is estimated to generate 123 net new daily vehicle trips, with 11 new trips occurring during the AM peak hour and 12 new trips occurring during the PM peak hour.

**Intersection Traffic Operations**

Based on the City of San Jose intersection operations analysis criteria, the project would not have an adverse effect on the signalized study intersection at Oakland Road and E. Gish Road.

**Other Transportation Issues**

The proposed site plan shows adequate site access and on-site circulation. The project would not have an adverse effect on the existing bicycle or transit facilities in the study area.

**Recommendations**

- The proposed project is estimated to add one vehicle trip to the US 101/Oakland Road interchange during the PM peak hour. Therefore, the project will be required to pay the US 101/Oakland/Mabury Transportation Development Policy traffic impact fee.
• While the project would meet the City’s requirements for the number of bicycle parking spaces, the site plan should be revised to provide secure long-term bicycle parking per the City’s Bicycle Parking Standards.

• The site plan should be revised to add motorcycle parking per the City’s Motorcycle Parking Standards.

• The results of the signal warrant check indicate that the AM and PM peak-hour volumes at the I-880 Northbound Ramps/Gish Road intersection currently meet the signal warrant and would continue to do so with the project. The project applicant should coordinate with City of San Jose staff to determine if there are any plans to signalize this intersection or install a roundabout. If so, it would be appropriate for the project to make a fair share monetary contribution toward the planned intersection improvements.

• The project applicant should provide a fair share monetary contribution toward the future improvements to pursue the construction of concrete trackways and sidewalks on the north and south sides of Gish Road across the tracks. The future improvements would be coordinated between the City and Union Pacific Railroad.
1605 Industrial Avenue
Warehouse Project Transportation Analysis
Technical Appendices

January 15, 2019
Appendix A
New Traffic Counts
Appendix B
Lists of Approved Projects
Appendix D

Intersection Level of Service Calculations
Appendix E
Signal Warrant Sheets
1605 Industrial Avenue
Warehouse Project Transportation Analysis
Technical Appendices

January 15, 2019
Appendix A
New Traffic Counts
AM Peak-Hour Volume Count Worksheet

Date: 9/25/2018
Counter: Kilbee
Intersection Name: 1605 Industrial
Weather: Clear, San Jose

<table>
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<th>OUT</th>
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**Start Time**

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**Peak Hour**

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<td>21</td>
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**Peak Volumes:**

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</tr>
</tbody>
</table>

**Auto-Census**

Traffic Monitoring and Analysis
870 Castlewood Dr. #1
Los Gatos, CA 95032
Phone 408-826-9673  Fax 408-877-1625
AM Peak-Hour Volume Count Worksheet

Date: 9/25/2018
Counter: Patti
Intersection Name: 1605 Industrial
Weather: Clear, San Jose

| Start Time | IN | OUT | IN | OUT
|------------|----|-----|----|-----
| 7:00       | 0  | 0   | 0  | 0   |
| 7:15       | 2  | 0   | 0  | 0   |
| 7:30       | 3  | 0   | 0  | 0   |
| 7:45       | 6  | 0   | 0  | 0   |
| 8:00       | 10 | 0   | 0  | 0   |
| 8:15       | 18 | 1   | 0  | 0   |
| 8:30       | 21 | 3   | 0  | 0   |
| 8:45       | 21 | 3   | 0  | 0   |
| 9:00       | 21 | 3   | 0  | 0   |

1605 Industrial

| Start Time | IN | OUT | IN | OUT
|------------|----|-----|----|-----
| 7:00       | 0  | 0   | 0  | 0   |
| 7:15       | 2  | 0   | 0  | 0   |
| 7:30       | 3  | 0   | 0  | 0   |
| 7:45       | 6  | 0   | 0  | 0   |
| 8:00       | 10 | 0   | 0  | 0   |
| 8:15       | 18 | 1   | 0  | 0   |
| 8:30       | 21 | 3   | 0  | 0   |
| 8:45       | 21 | 3   | 0  | 0   |
| 9:00       | 21 | 3   | 0  | 0   |

<table>
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<tr>
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<th>OUT</th>
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<tr>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>17</td>
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</tr>
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Peak Volumes: 18 3 0 0 0 0 0 0 21
**Traffic Counts**

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<th>Rolling Hour</th>
<th>Pedestrian Crossings</th>
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<td>Total</td>
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<td>0 7 0 28</td>
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<td>0 0 106 9</td>
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<td>218 0 0 1</td>
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**Peak Rolling Hour Flow Rates**

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<th>Northbound</th>
<th>Southbound</th>
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<td>U-Turn Left Thru Right</td>
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| Total              | 0 79 321 0 446 51 | 0 37 0 63 997 |
Location: 3 I-880 & GISH RD AM  
Date: Wednesday, December 5, 2018  
Peak Hour: 07:15 AM - 08:15 AM  
Peak 15-Minutes: 08:00 AM - 08:15 AM  

### Peak Hour - All Vehicles

<table>
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<th>Eastbound Thru</th>
<th>Eastbound Right</th>
<th>Westbound U-Turn</th>
<th>Westbound Thru</th>
<th>Westbound Right</th>
<th>Northbound U-Turn</th>
<th>Northbound Thru</th>
<th>Northbound Right</th>
<th>Southbound U-Turn</th>
<th>Southbound Thru</th>
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### Peak Rolling Hour Flow Rates

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<th>Eastbound Right</th>
<th>Westbound U-Turn</th>
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<th>Northbound U-Turn</th>
<th>Northbound Thru</th>
<th>Northbound Right</th>
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Note: Total study counts contained in parentheses.
Location: 1 INDUSTRIAL AVE & KINGS ROW AM  
Date: Thursday, December 13, 2018  
Peak Hour: 07:15 AM - 08:15 AM  
Peak 15-Minutes: 07:45 AM - 08:00 AM

### Peak Hour - All Vehicles

<table>
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<tr>
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<th>(19)</th>
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<tr>
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### Traffic Counts

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<th>Thru</th>
<th>Right</th>
<th>U-Turn</th>
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<th>Thru</th>
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<th>U-Turn</th>
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<th>Thru</th>
<th>Right</th>
<th>Total</th>
<th>Rolling Hour</th>
<th>Pedestrian Crossings</th>
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### Peak Rolling Hour Flow Rates

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<th>Vehicle Type</th>
<th>U-Turn</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>U-Turn</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>U-Turn</th>
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<th>Thru</th>
<th>Right</th>
<th>U-Turn</th>
<th>Left</th>
<th>Thru</th>
<th>Right</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articulated Trucks</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>2</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
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<td>3</td>
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</tr>
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Note: Total study counts contained in parentheses.
Location: 2 N 10TH ST & OLD BAYSHORE HWY AM

Date: Thursday, December 13, 2018

Peak Hour: 07:30 AM - 08:30 AM

Peak 15-Minutes: 07:45 AM - 08:00 AM

Peak Hour - All Vehicles

Peak Hour - Pedestrians/Bicycles in Crosswalk

Note: Total study counts contained in parentheses.

Traffic Counts

<table>
<thead>
<tr>
<th>Interval Start Time</th>
<th>OLD BAYSHORE HWY Eastbound</th>
<th>OLD BAYSHORE HWY Westbound</th>
<th>N 10TH ST Northbound</th>
<th>E GISH RD Southbound</th>
<th>Total Rolling Hour</th>
<th>Pedestrian Crossings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>U-Turn</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>U-Turn</td>
<td>Left</td>
</tr>
<tr>
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<td>25</td>
<td>78</td>
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<td>85</td>
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<td>11</td>
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Peak Rolling Hour Flow Rates

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<th>Westbound</th>
<th>Northbound</th>
<th>Southbound</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>U-Turn</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
</tr>
<tr>
<td>Articulated Trucks</td>
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<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Lights</td>
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<td>Total</td>
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Location: INDUSTRIAL AVE & GISH RD PM  
Date: Tuesday, December 4, 2018  
Peak Hour: 05:00 PM - 06:00 PM  
Peak 15-Minutes: 05:00 PM - 05:15 PM

Traffic Counts

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<th>GISH RD Westbound</th>
<th>Northbound</th>
<th>INDUSTRIAL AVE Southbound</th>
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<th>Pedestrian Crossings</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>U-Turn Left Thru Right</td>
<td>U-Turn Left Thru Right</td>
<td>U-Turn Left Thru Right</td>
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<tr>
<td>4:00 PM</td>
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<td>0 0 103 12</td>
<td>0 15 0 35 263</td>
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<tr>
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<td>0 0 71 9</td>
<td>0 24 0 25 217</td>
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<td>4:30 PM</td>
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<td>0 0 105 7</td>
<td>0 26 0 26 262</td>
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<td>0 0 107 7</td>
<td>0 29 0 34 298</td>
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<td>0 0 99 10</td>
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<td>0 0 103 9</td>
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Peak Rolling Hour Flow Rates

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<th>Northbound</th>
<th>Southbound</th>
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<td>U-Turn Left Thru Right</td>
<td>U-Turn Left Thru Right</td>
<td>U-Turn Left Thru Right</td>
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<tr>
<td>Articulated Trucks</td>
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<td>0 0 0 0</td>
<td>0 0 0 0</td>
</tr>
<tr>
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<td>0 0 420 31</td>
<td>0 77 0 86</td>
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### Traffic Counts

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<td>Thru</td>
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### Peak Rolling Hour Flow Rates

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<th>Westbound</th>
<th>Northbound</th>
<th>Southbound</th>
<th>Total</th>
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<tbody>
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<td>U-Turn</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
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</tr>
<tr>
<td>Articulated Trucks</td>
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</tr>
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Note: Total study counts contained in parentheses.
Traffic Counts

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<th>KINGS ROW</th>
<th>INDUSTRIAL AVE Northbound</th>
<th>INDUSTRIAL AVE Southbound</th>
<th>Rolling Hour</th>
<th>Pedestrian Crossings</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>U-Turn</td>
<td>Left</td>
<td>Thru</td>
<td>Right</td>
<td>U-Turn</td>
<td>Left</td>
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Peak Rolling Hour Flow Rates

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Articulated Trucks</th>
<th>Lights</th>
<th>Mediums</th>
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<tbody>
<tr>
<td>U-Turn Left Thru Right</td>
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<td>0 0 0 5</td>
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<tr>
<td>Total</td>
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Total:

- Eastbound: 1 1 3 102
- Westbound: 0 0 30 1
- Total: 202
Location: 2 N 10TH ST & OLD BAYSHORE HWY PM
Date: Wednesday, December 12, 2018
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

Peak Hour - All Vehicles

<table>
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<tr>
<th>Interval Start Time</th>
<th>OLD BAYSHORE HWY Eastbound</th>
<th>OLD BAYSHORE HWY Westbound</th>
<th>N 10TH ST Northbound</th>
<th>E GISH RD Southbound</th>
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<th>Pedestrian Crossings</th>
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<td>4:00 PM</td>
<td>0 101 368</td>
<td>0 32 64 34</td>
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<td>4:15 PM</td>
<td>0 102 346</td>
<td>0 25 40 27</td>
<td>0 16 44 88</td>
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<td>4:30 PM</td>
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<td>0 25 46 22</td>
<td>0 9 50 59</td>
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Peak Rolling Hour Flow Rates

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<th>Northbound</th>
<th>Southbound</th>
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**Intersection #3554: GISH/OAKLAND**

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<th>706</th>
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**Approach:**

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**Volume Module:** 20 Sep 2018 << 7:35-8:35

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<td>Reduct Vol:</td>
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<tr>
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<td>Final Volume:</td>
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**Saturation Flow Module:**

| Sat/Lane: | 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 |
| Adjustment: | 0.92 1.00 0.92 1.00 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 1.00 |
| Lanes: | 1.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00 |
| Final Sat.: | 1750 5700 0 0 5700 1750 1750 0 1750 0 0 0 |

**Capacity Analysis Module:**

| Vol/Sat: | 0.18 0.12 0.00 0.00 0.09 0.20 0.06 0.00 0.07 0.00 0.00 0.00 |
| Crit Moves: | **** **** **** |
| Green Time: | 36.2 76.8 0.0 0.0 40.5 40.5 14.2 0.0 14.2 0.0 0.0 0.0 |
| Volume/Cap: | 0.50 0.16 0.00 0.00 0.21 0.50 0.41 0.00 0.50 0.00 0.00 0.00 |
| Delay/Veh: | 25.5 3.1 0.0 0.0 19.4 22.8 40.1 0.0 41.2 0.0 0.0 0.0 |
| User DelAdj: | 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 |
| AdjDel/Veh: | 25.5 3.1 0.0 0.0 19.4 22.8 40.1 0.0 41.2 0.0 0.0 0.0 |
| LOS by Move: | C A A A B+ C+ D A D A A A |
| HCM2k95thQ: | 16 4 0 0 6 17 7 0 9 0 0 0 |

Note: Queue reported is the number of cars per lane.
Intersection #3554: GISH/OAKLAND

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Min. Green: 7 10 0 0 10 10 0 10 0 0 0 0 0 0

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Volume Module: >> Count Date: 20 Sep 2018 << 4:30-5:30

Base Vol: 96 521 0 0 1117 218 199 0 240 0 0 0 0 0

Growth Adj: 1.00 1.00 0.92 1.00 0.92 1.00 0.92 1.00 0.92 1.00 0.92 1.00 0.92

Initial Bse: 96 521 0 0 1117 218 199 0 240 0 0 0 0 0

User 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 1.00 1.00

PHF 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 1.00 1.00

PHF Volume: 96 521 0 0 1117 218 199 0 240 0 0 0 0 0

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 96 521 0 0 1117 218 199 0 240 0 0 0 0 0

PCE 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 1.00 1.00

MLF 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 1.00 1.00

FinalVolume: 96 521 0 0 1117 218 199 0 240 0 0 0 0 0

Final Sat.: 1750 5700 0 0 5700 1750 1750 0 1750 0 0 0 0 0

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00

Lanes: 1.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00 0.00

Final Sat.: 1750 5700 0 0 5700 1750 1750 0 1750 0 0 0 0 0

Capacity Analysis Module:

Vol/Sat: 0.05 0.09 0.00 0.00 0.20 0.12 0.11 0.00 0.14 0.00 0.00 0.00

Crit Moves: **** **** **** ****

Green Time: 11.5 52.4 0.0 0.0 40.9 40.9 28.6 0.0 28.6 0.0 0.0 0.0

Volume/Cap: 0.43 0.16 0.00 0.00 0.43 0.27 0.36 0.00 0.43 0.00 0.00 0.00

Delay/Veh: 37.6 8.7 0.0 0.0 16.8 15.5 24.0 0.0 24.8 0.0 0.0 0.0

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 37.6 8.7 0.0 0.0 16.8 15.5 24.0 0.0 24.8 0.0 0.0 0.0

LOS by Move: D+ A A A B B C A C A A

HCM2k95thQ: 6 4 0 0 13 8 9 0 11 0 0 0

Note: Queue reported is the number of cars per lane.
Appendix B
Lists of Approved Projects
Intersection of: GISH/OAKLAND
Traffic Node Number: 3554

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<tr>
<th>Permit No. / Description / Location</th>
<th>M09 NBL</th>
<th>M08 NBT</th>
<th>M07 NBR</th>
<th>M03 SBL</th>
<th>M02 SBT</th>
<th>M01 SBR</th>
<th>M12 EBL</th>
<th>M11 EBT</th>
<th>M10 EBR</th>
<th>M06 WBL</th>
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**LEFT** 0 35 5
**THRU** 0 0 0
**RIGHT** 22 122 0
**NORTH** 0 35 5
**EAST** 0 0 0
**SOUTH** 22 122 0
**WEST** 18 0 2
### PM APPROVED TRIPS

**Intersection of: GISH/OAKLAND**
**Traffic Node Number: 3554**

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<th>M08 NBT</th>
<th>M07 NBR</th>
<th>M03 SBL</th>
<th>M02 SBT</th>
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- **THRU:**
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  - EAST: 33
  - SOUTH: 39
  - WEST: 0

- **RIGHT:**
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  - EAST: 0
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  - WEST: 2
## AM APPROVED TRIPS

**Intersection of:** BAYSHORE/TENTH  
**Traffic Node Number:** 3289

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**TOTAL:** 59 57 11 0 6 6 0 24 19 0 18 12

**LEFT THRU RIGHT**

- **NORTH:** 0 6 6
- **EAST:** 0 18 12
- **SOUTH:** 59 57 11
- **WEST:** 0 24 19
Appendix C
Volume Summary
### Intersection Number: 1
### Traffix Node Number: 1
### Intersection Name: I-880 and Gish Rd
### Peak Hour: AM
### Count Date: 12/5/18

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### Intersection Name: Industrial Ave and Gish Rd
### Peak Hour: AM
### Count Date: 12/5/18

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### Peak Hour: AM
### Count Date: 9/20/18

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### Intersection Name:
N 10th St and Old Bayshore Hwy

### Peak Hour:
AM

### Count Date:
12/12/18

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### Traffix Node Number
5

### Intersection Name
Industrial Ave and Kings Row

### Peak Hour
AM

### Count Date
12/12/18

#### Movements

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Intersection Name: I-880 and Gish Rd
Peak Hour: PM
Count Date: 12/4/18

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Intersection Name: Industrial Ave and Gish Rd
Peak Hour: PM
Count Date: 12/4/18

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<th>West Approach</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>RT</td>
<td>TH</td>
<td>LT</td>
<td>RT</td>
<td>TH</td>
</tr>
<tr>
<td></td>
<td>91</td>
<td>0</td>
<td>78</td>
<td>34</td>
<td>424</td>
</tr>
<tr>
<td>ATI</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>33</td>
</tr>
<tr>
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<td>TH</td>
<td>LT</td>
<td>RT</td>
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</tr>
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<td>91</td>
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<td>LT</td>
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<td>TH</td>
</tr>
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<td></td>
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<td>0</td>
<td>80</td>
<td>34</td>
<td>457</td>
</tr>
<tr>
<td><strong>Cumulative Plus Project Conditions</strong></td>
<td>RT</td>
<td>TH</td>
<td>LT</td>
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<td>99</td>
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<td>82</td>
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Intersection Number: 3
Traffix Node Number: 3554
Intersection Name: Oakland Rd and Gish Rd
Peak Hour: PM
Count Date: 9/20/18

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<tr>
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<th>South Approach</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>TH</td>
<td>LT</td>
<td>RT</td>
<td>TH</td>
</tr>
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<td>218</td>
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<td><strong>Background Plus Project Conditions</strong></td>
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<td>TH</td>
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<td><strong>Cumulative Plus Project Conditions</strong></td>
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<td>LT</td>
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Intersection Number: 4  
Traffix Node Number: 3289  
Intersection Name: N 10th St and Old Bayshore Hwy  
Peak Hour: PM  
Count Date: 12/12/18

<table>
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<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
<th>Total</th>
</tr>
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<tbody>
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<td></td>
<td></td>
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<td><strong>TH</strong></td>
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<td>41</td>
<td>88</td>
<td>173</td>
</tr>
<tr>
<td></td>
<td>ATI</td>
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<td>6</td>
<td>0</td>
<td>12</td>
</tr>
</tbody>
</table>

| **Background Conditions** | | | | | |
| | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **Total** |
| | 294 | 175 | 41 | 100 | 191 | 112 | 41 | 328 | 192 | 1417 | 477 | 171 | 3539 |

| **Background Plus Project Conditions** | | | | | |
| | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **Total** |
| | 294 | 175 | 41 | 100 | 191 | 112 | 41 | 328 | 192 | 1417 | 477 | 171 | 3539 |

| **Cumulative Plus Project Conditions** | | | | | |
| | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **Total** |
| | 301 | 179 | 42 | 102 | 195 | 115 | 42 | 335 | 195 | 1451 | 488 | 175 | 3619 |

Intersection Number: 5  
Traffix Node Number: 5  
Intersection Name: Industrial Ave and Kings Row

<table>
<thead>
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<th>Scenario:</th>
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<th>East Approach</th>
<th>South Approach</th>
<th>West Approach</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing Conditions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>RT</strong></td>
<td><strong>TH</strong></td>
<td><strong>LT</strong></td>
<td><strong>RT</strong></td>
<td><strong>TH</strong></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ATI</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| **Background Conditions** | | | | | |
| | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **Total** |
| | 1 | 30 | 0 | 0 | 0 | 150 | 102 | 3 | 2 | 6 | 0 | 0 | 294 |

| **Background Plus Project Conditions** | | | | | |
| | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **Total** |
| | 1 | 29 | 0 | 0 | 0 | 150 | 105 | 4 | 2 | 6 | 0 | 0 | 306 |

| **Cumulative Plus Project Conditions** | | | | | |
| | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **RT** | **TH** | **LT** | **Total** |
| | 1 | 30 | 0 | 0 | 0 | 163 | 107 | 4 | 2 | 6 | 0 | 0 | 313 |
Appendix D
Intersection Level of Service Calculations
Intersection #1: I-880 & GISH RD

Level of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Existing AM

Street Name: I-880
Approach: North Bound
Movement: L - T - R

Volume Module: >> Count Date: 5 Dec 2018 << 7:15 - 8:15 AM
Base Vol: 0 0 0 319 159 0 0 310 129 276 0 191
Growth 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
Initial Bse: 0 0 0 319 159 0 0 310 129 276 0 191
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
PassengerVol: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 319 159 0 0 310 129 276 0 191
User 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
PHF 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
PHF Volume: 0 0 0 319 159 0 0 310 129 276 0 191
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Volume: 0 0 0 319 159 0 0 310 129 276 0 191

Critical Gap Module:
Critical Gap: 4.1 XXXX XXXX XXXX 6.5 6.2 7.1 XXXX 6.2
FollowUpTime: 2.2 XXXX XXXX XXXX 4.0 3.3 3.5 XXXX 3.3

Conflict Module:
Conflict Vol: 0 XXXX XXXX XXXX XXXX 797 159 1017 XXXX 0
Potent Cap.: 1636 XXXX XXXX XXXX 322 892 218 XXXX 1091
Move Cap.: 1636 XXXX XXXX XXXX 259 892 0 XXXX 1091
Volume/Cap: 0.19 XXXX XXXX XXXX 1.20 0.14 XXXX XXXX 0.18

Level of Service Module:
2Way9thQ: 0.7 XXXX XXXX XXXX 14.4 0.5 XXXX XXXX 0.6
Control Del: 7.7 XXXX XXXX XXXX 160 9.7 XXXX XXXX 9.0
LOS by Move: A A A F A A
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shared Queue: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shrd ConDel: XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX XXXX
Shared LOS: * * * * * * * * * * * *
Approach Del: 116.1 +Inf
Approach LOS: F F

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

Intersection #1 I-880 & GISH RD

Future Volume Alternative: Peak Hour Warrant Met
<table>
<thead>
<tr>
<th>Approach:</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement:</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Uncontrolled</td>
<td>Uncontrolled</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
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<tr>
<td>Lanes:</td>
<td>0 1 0 0 0 0</td>
<td>1 1 0 1 0 0</td>
<td>0 0 1 0 1 1</td>
<td>1 0 0 0 1 0</td>
</tr>
<tr>
<td>Initial Vol:</td>
<td>319 159</td>
<td>0 310 129</td>
<td>276 0 91</td>
<td>191</td>
</tr>
<tr>
<td>Approach Del:</td>
<td>xxxxx</td>
<td>xxxxxx</td>
<td>116.1</td>
<td>+Inf</td>
</tr>
</tbody>
</table>

**Approach [eastbound] [lanes=2] [control=Stop Sign]**

**Signal Warrant Rule #1:** [vehicle-hours=14.2]

**SUCCEED** - Vehicle-hours >= 5 for two or more lane approach.

**Signal Warrant Rule #2:** [approach volume=439]

**SUCCEED** - Approach volume >= 150 for two or more lane approach.

**Signal Warrant Rule #3:** [approach count=3][total volume=1384]

**SUCCEED** - Total volume greater than or equal to 650 for intersection with less than four approaches.

**Approach [westbound] [lanes=2] [control=Stop Sign]**

**Signal Warrant Rule #1:** [vehicle-hours=OVERFLOW]

**SUCCEED** - Vehicle-hours >= 5 for two or more lane approach.

**Signal Warrant Rule #2:** [approach volume=467]

**SUCCEED** - Approach volume >= 150 for two or more lane approach.

**Signal Warrant Rule #3:** [approach count=3][total volume=1384]

**SUCCEED** - Total volume greater than or equal to 650 for intersection with less than four approaches.

**SIGNAL WARRANT DISCLAIMER**

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

**Peak Hour Volume Signal Warrant Report [Urban]**

**Intersection #1 I-880 & GISH RD**

**Future Volume Alternative: Peak Hour Warrant NOT Met**

<table>
<thead>
<tr>
<th>Approach:</th>
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<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement:</td>
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<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
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<tr>
<td>Control:</td>
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<td>Uncontrolled</td>
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<td>Stop Sign</td>
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<td>Lanes:</td>
<td>0 1 0 0 0 0</td>
<td>1 0 1 0 0 0</td>
<td>0 0 1 0 1 1</td>
<td>1 0 0 0 1 0</td>
</tr>
<tr>
<td>Initial Vol:</td>
<td>319 159</td>
<td>0 310 129</td>
<td>276 0 91</td>
<td>191</td>
</tr>
<tr>
<td>Major Street Volume:</td>
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<tr>
<td>Minor Approach Volume:</td>
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<td>Minor Approach Volume Threshold:</td>
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<td></td>
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</table>

**SIGNAL WARRANT DISCLAIMER**

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**Intersection #1: I-880 & GISH RD**

**Signal=Uncontrolled/Right=Include**

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<td>333</td>
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<table>
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<th>Lanes:</th>
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</tr>
<tr>
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</tr>
</tbody>
</table>

**Vol Crit Date:** 12/5/2018  
**Cycle Time (sec):** 100  
**Loss Time (sec):** 0  
**Critical V/C:** 1.645

**Avg Crit Del (sec/veh):** OVERFLOW  
**Avg Delay (sec/veh):** OVERFLOW  
**LOS:** F

---

**Street Name:** I-880  
**Approach:** GISH

<table>
<thead>
<tr>
<th>Movement:</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
</tbody>
</table>

**Volume Module:**  
**Base Vol:** 319 159 0 0 310 129 276 0 191

**Growth Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Initial Bse:** 319 159 0 0 310 129 276 0 191

**Added Vol:** 0 0 0 0 0 0 0 0 0

**ATT AM:** 14 0 0 0 96 6 16 0 11

**Init Fut:** 333 159 0 0 406 135 292 0 202

**User Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PHF Adj:** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PHF Volume:** 333 159 0 0 406 135 292 0 202

**Reduct Vol:** 0 0 0 0 0 0 0 0 0

**Final Volume:** 333 159 0 0 406 135 292 0 202

---

**Critical Gap Module:**  
**Critical Gp:** 4.1 xxx xxxx xxxx xxxx 6.5 6.2 7.1 xxxx 6.2

**Follow Up Time:** 2.2 xxxx xxxx xxxx 4.0 3.3 3.5 xxxx 3.3

---

**Capacity Module:**  
**Conflict Vol:** 0 xxxx xxxx xxxx 825 159 1096 xxxx 0

**Potent Cap.:** 1636 xxxx xxxx xxxx 310 892 193 xxxx 1091

**Move Cap.:** 1636 xxxx xxxx xxxx 247 892 0 xxxx 1091

**Volume/Cap.:** 0.20 xxxx xxxx xxxx 1.64 0.15 xxxx xxxx 0.19

---

**Level Of Service Module:**  
**2Way 95thQ:** 0.8 xxxx xxxx xxxx 25.8 0.5 xxxx xxxx 0.7

**Control Del:** 7.8 xxxx xxxx xxxx 343 9.8 xxxx xxxx 9.0

**LOS by Move:** * * * * A * P * A * A

**Movement:** LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

**Shared Cap.:** XXX XXX XXX XXX XXX XXX XXX XXX XXX XXX

**Shared Queue:** XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX XXXXXX

**Shared LOS:** * * * * * * * * *

**Approach Del:** 259.9 +Inf

---

**Approach LOS:** * * * * * * F F

**Note:** Queue reported is the number of cars per lane.

---

**Traffic 8.0.0.15**  
**Copyright (C) 2008 Dowling Associates, Inc.**  
**Licensed to Hexagon Trans., San Jose**
Future Volume Alternative: Peak Hour Warrant Met
---------------------------|---------------------------|---------------------------|---------------------------|
Approach: North Bound South Bound East Bound West Bound
---------------------------|---------------------------|---------------------------|---------------------------|
Movement: L - T - R L - T - R L - T - R L - T - R
---------------------------|---------------------------|---------------------------|---------------------------|
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
---------------------------|---------------------------|---------------------------|---------------------------|
Lanes: 0 0 0 0 0 1 0 0 0 0 0 0 1 0 1 1 0 0 1
---------------------------|---------------------------|---------------------------|---------------------------|
Initial Vol: 333 159 0 0 406 135 292 0 202
---------------------------|---------------------------|---------------------------|---------------------------|
Approach Del.: xxxxxx xxxxxx
---------------------------|---------------------------|---------------------------|---------------------------|
Approach [eastbound] [lanes=2] [control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=39.1]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=541]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1527]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Approach [westbound] [lanes=2] [control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=494]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1527]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

******************************************************************************
Intersection #1 I-880 & GISH RD
******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
---------------------------|---------------------------|---------------------------|---------------------------|
Approach: North Bound South Bound East Bound West Bound
---------------------------|---------------------------|---------------------------|---------------------------|
Movement: L - T - R L - T - R L - T - R L - T - R
---------------------------|---------------------------|---------------------------|---------------------------|
Control: Uncontrolled Uncontrolled Stop Sign Stop Sign
---------------------------|---------------------------|---------------------------|---------------------------|
Lanes: 0 0 0 0 0 1 0 1 0 0 0 0 1 0 1 1 0 0 1
---------------------------|---------------------------|---------------------------|---------------------------|
Initial Vol: 333 159 0 0 406 135 292 0 202
---------------------------|---------------------------|---------------------------|---------------------------|
Major Street Volume: 492
Minor Approach Volume: 541
Minor Approach Volume Threshold: 679

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.
Intersection #1: I-880 & GISH RD

Street Name: I-880

Approach: North Bound

Movement: L - T - R

Volume Module: >> Count Date: 5 Dec 2018 << 7:15 - 8:15 AM
Base Vol: 0 0 0 333 159 0 0 406 135 292 0 202
Growth 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
Initial Vol: 0 0 0 333 159 0 0 406 135 292 0 202
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Project Vol: 0 0 0 4 0 0 0 0 1 3 0 1
User 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
PQF 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
PQF Volume: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Volume: 0 0 0 337 159 0 0 406 136 295 0 203

Critical Gap Module:
Critical Gap: xxxx xxxx xxxx 4.1 xxxx xxxx xxxx 6.5 6.2 7.1 xxxx 6.2
FollowUpTime: xxxx xxxx xxxx 2.2 xxxx xxxx xxxx 4.0 3.3 3.5 xxxx 3.3

Capacity Module:
Conflict Vol: xxxx xxxx xxxx 0 xxxx xxxx xxxx 833 159 1104 xxxx 0
Potent Cap: xxxx xxxx xxxx 1636 xxxx xxxx xxxx 307 892 190 xxxx 1091
Move Cap: xxxx xxxx xxxx 1636 xxxx xxxx xxxx 243 892 0 xxxx 1091
Volume/Cap: xxxx xxxx xxxx 0.21 xxxx xxxx xxxx 1.67 0.15 xxxx 0.19

Level Of Service Module:
2Way95thQ: xxxx xxxx xxxx 0.8 xxxx xxxx xxxx 26.1 0.5 xxxx xxxx 0.7
Control Del: xxxx xxxx xxxx 7.8 xxxx xxxx xxxx 353 9.8 xxxx xxxx 9.1
LOS by Move: * A * F A * A
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Shared Queue: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Shrd ConDel: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Shared LOS: * * * * * * * * * * * *
Approach Del: xxxxxx xxxxxx 267.1 +Inf
Approach LOS: * F F

Note: Queue reported is the number of cars per lane.
Peak Hour Delay Signal Warrant Report

Intersection #1 I-880 & GISH RD
Future Volume Alternative: Peak Hour Warrant Met
-----------------------------------------------|------------------|
Approach: North Bound | South Bound | East Bound | West Bound
-----------------------------------------------|------------------|
Movement: L - T - R | L - T - R | L - T - R | L - T - R
-----------------------------------------------|------------------|
Control: Uncontrolled | Uncontrolled | Stop Sign | Stop Sign
-----------------------------------------------|------------------|
Lanes: 0 0 0 0 | 0 0 0 0 | 0 0 1 0 | 1 0 0 0
Original Vol: 0 0 0 0 | 337 159 | 0 0 106 136 | 295 0 203
Approach Del: xxxxxx | xxxxxx | 267.1 | +Inf
-----------------------------------------------|------------------|
Approach [eastbound] [lanes=2] [control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=40.2]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=542]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1536]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

Approach [westbound] [lanes=2] [control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=498]
SUCCEED - Approach volume >= 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1536]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

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a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

*****************************************************************************
Intersection #1 I-880 & GISH RD
*****************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
-----------------------------------------------|------------------|
Approach: North Bound | South Bound | East Bound | West Bound
-----------------------------------------------|------------------|
Movement: L - T - R | L - T - R | L - T - R | L - T - R
-----------------------------------------------|------------------|
Control: Uncontrolled | Uncontrolled | Stop Sign | Stop Sign
-----------------------------------------------|------------------|
Lanes: 0 0 0 0 | 0 0 1 0 | 0 0 1 0 | 1 0 0 0
Original Vol: 0 0 0 0 | 337 159 | 0 0 106 136 | 295 0 203
-----------------------------------------------|------------------|
Major Street Volume: 496
Minor Approach Volume: 542
Minor Approach Volume Threshold: 676

SIGNAL WARRANT DISCLAIMER
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a traffic signal in the future. Intersections that exceed this warrant
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jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
### Intersection #1: I-880 & GISH RD

**Level Of Service Computation Report**  
2000 HCM Unsignalized (Future Volume Alternative)  
Cumulative + Prj AM

#### Final Vol:
- Signal=UncontrolRights=Include
- Lanes: 0 163 345

#### Final Vol:
- Signal=StopRights=Include
- Lanes: 0 413 139

#### Final Vol:
- Signal=StopRights=Include
- Lanes: Final Vol: 1 208

#### Loss Time (sec): 0

#### Critical V/C: 1.753

#### Avg Ctr Del (sec/veh): OVERFLOW

#### Avg Delay (sec/veh): OVERFLOW

#### LOS: F

---

**Street Name:** I-880

**Approach:** GISH

**Movement:**
- **North Bound**: L - T - R
- **South Bound**: L - T - R
- **East Bound**: L - T - R
- **West Bound**: L - T - R

**Volume Module:** >> Count Date: 5 Dec 2018 << 7:15 - 8:15 AM

**Base Vol:**
- 0 0 0 341 163 0 0 413 138 299 0 207

**Growth 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

**Initial Inv:**
- 0 0 0 341 163 0 0 413 138 299 0 207

**Added Vol:**
- 0 0 0 0 0 0 0 0 0 0 0 0

**Prj AM:**
- 0 0 0 0 0 0 0 0 0 0 0 0

**Initial Fut:**
- 0 0 0 345 163 0 0 413 139 302 0 208

**User 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

**PHF 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

**PHF Volume:**
- 0 0 0 345 163 0 0 413 139 302 0 208

**Reduct Vol:**
- 0 0 0 0 0 0 0 0 0 0 0 0

**Final Volume:**
- 0 0 0 345 163 0 0 413 139 302 0 208

**Critical Gap Module:**
- Critical Gp: xxxxxx xxxxxx xxxxxx 4.1 xxxxx xxxxxx xxxxxx 6.5 6.2 7.1 xxxxx 6.2

**FollowUpTim:**
- xxxxxx xxxxxx xxxxxx 2.2 xxxxx xxxxxx xxxxxx 4.0 3.3 3.5 xxxxx 3.3

**Capacity Module:**
- Cnflct Vol: xxxxxx xxxxxx xxxxxx 0 xxxxx xxxxxx xxxxxx 853 163 1129 xxxxx 0

**Potent Cap.:**
- 1636 xxxxx xxxxxx 299 887 183 xxxxx 1091

**Move Cap.:**
- 1636 xxxxx xxxxxx 236 887 0 xxxxx 1091

**Volume/Cap.:**
- 0.21 xxxxx xxxxxx xxxxxx 1.75 0.16 xxxxx xxxxxx 0.19

**Level Of Service Module:**
- 2WayStxHQ:
- Control Del: xxxxxx xxxxxx 27.8 0.6 xxxxx xxxxx 0.7

**LOS by Move:**
- LT - LTR - RT

**Movement:**
- LT - LTR - RT

**Shared Cap.:**
- xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

**SharedQueue:**
- xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

**Shrd ConDel:**
- xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

**Shared LOS:**
- 295.4 +Inf

**Note:** Queue reported is the number of cars per lane.

---

**Intersection #1 I-880 & GISH RD**

---

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Future Volume Alternative: Peak Hour Warrant Met

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
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<th>East Bound</th>
<th>West Bound</th>
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</thead>
<tbody>
<tr>
<td>Movement</td>
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<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control</td>
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<td>Uncontrolled</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
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<tr>
<td>Lanes</td>
<td>0 0 0 0 0 1</td>
<td>0 0 1 0 1 0</td>
<td>0 0 1 0 1 0</td>
<td>1 0 0 0 1 1</td>
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<tr>
<td>Initial Vol</td>
<td>345 163 0</td>
<td>413 139 302</td>
<td>0 208 0</td>
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<tr>
<td>Approach Del:</td>
<td>xxxxxx</td>
<td>xxxxxx</td>
<td>295.4 +Inf</td>
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</tbody>
</table>

Approach [eastbound] [lanes=2] [control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=45.3]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=552]
SUCCEED - Approach volume >= 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3] [total volume=1570]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

Approach [westbound] [lanes=2] [control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=OVERFLOW]
SUCCEED - Vehicle-hours >= 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=510]
SUCCEED - Approach volume >= 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3] [total volume=1570]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #1 I-880 & GISH RD

Future Volume Alternative: Peak Hour Warrant NOT Met

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<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
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<tr>
<td>Control</td>
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<td>Uncontrolled</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
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<tr>
<td>Lanes</td>
<td>0 0 0 0 0 1</td>
<td>0 0 1 0 1 0</td>
<td>0 0 1 0 1 0</td>
<td>1 0 0 0 1 1</td>
</tr>
<tr>
<td>Initial Vol</td>
<td>345 163 0</td>
<td>413 139 302</td>
<td>0 208 0</td>
<td></td>
</tr>
</tbody>
</table>

Major Street Volume: 508
Minor Approach Volume: 552
Minor Approach Volume Threshold: 665

SIGNAL WARRANT DISCLAIMER
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### Level Of Service Computation Report

2000 HCM Unsignalized (Future Volume Alternative) Existing AM

#### Intersection #2: INDUSTRIAL AVE & GISH RD

**Final Vol:**
- Lanes: 63
- Signal=Stop/Right=Include: 0
- Vol Ctrl Date: 12/5/2018
- Cycle Time (sec): 100
- Loss Time (sec): 0
- Critical Vic: 0.135
- Avg Ctrl Del (sec/veh): 2.2
- Avg Delay (sec/veh): 2.2
- LOS: B

**Lanes:**
- 63 0 0 0 0 1
- 79 0 0 0 0 1
- 321 0 0 0 0 0

**Street Name:**
- Industrial Ave
- Gish Rd

**Approach:**
- North Bound
  - Movement: L - T - R
  - Volume Module: >>
  - Base Vol: 0 0 0 63 63 79 321 0 0 446 51
  - Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - Initial Base: 0 0 0 37 37 79 321 0 0 446 51
  - Added Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Passer By: 0 0 0 0 0 0 0 0 0 0 0
  - Initial Fut: 0 0 0 0 0 37 37 79 321 0 0 446 51
  - User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Volume: 0 0 0 37 37 79 321 0 0 446 51
  - Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Final Volume: 0 0 0 37 37 79 321 0 0 446 51

- South Bound
  - Movement: L - T - R
  - Volume Module: >>
  - Base Vol: 0 0 0 63 63 79 321 0 0 446 51
  - Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - Initial Base: 0 0 0 37 37 79 321 0 0 446 51
  - Added Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Passer By: 0 0 0 0 0 0 0 0 0 0 0
  - Initial Fut: 0 0 0 0 0 37 37 79 321 0 0 446 51
  - User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Volume: 0 0 0 37 37 79 321 0 0 446 51
  - Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Final Volume: 0 0 0 37 37 79 321 0 0 446 51

- East Bound
  - Movement: L - T - R
  - Volume Module: >>
  - Base Vol: 0 0 0 63 63 79 321 0 0 446 51
  - Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - Initial Base: 0 0 0 37 37 79 321 0 0 446 51
  - Added Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Passer By: 0 0 0 0 0 0 0 0 0 0 0
  - Initial Fut: 0 0 0 0 0 37 37 79 321 0 0 446 51
  - User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Volume: 0 0 0 37 37 79 321 0 0 446 51
  - Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Final Volume: 0 0 0 37 37 79 321 0 0 446 51

- West Bound
  - Movement: L - T - R
  - Volume Module: >>
  - Base Vol: 0 0 0 63 63 79 321 0 0 446 51
  - Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - Initial Base: 0 0 0 37 37 79 321 0 0 446 51
  - Added Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Passer By: 0 0 0 0 0 0 0 0 0 0 0
  - Initial Fut: 0 0 0 0 0 37 37 79 321 0 0 446 51
  - User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
  - PHF Volume: 0 0 0 37 37 79 321 0 0 446 51
  - Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0
  - Final Volume: 0 0 0 37 37 79 321 0 0 446 51

**Critical Gap Module:**
- Critical Gap: x x x x x x x x
- Follow Up Time: 3.5 x x x x x x x x

**Capacity Module:**
- Conflict Vol: 951 x x x x x x
- Potent Cap: 291 x x x x x x
- Move Cap: 274 x x x x x x
- Volume/Cap: 0.14 x x x x x x

**Level Of Service Module:**
- 2 Way 95th: x x x x x x x x x x x x
- Control Del: 20.2 x x x x x x
- LOS by Movement: "C" "B" "A"
- Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
- Shared Cap: XXX X XXX X XXX X XXX X XXX X XXX X XXX X XXX X XXX X XXX
- Shred Queue: 0.2 x x x x x x
- Shred Con Del: 8.6 x x x x x x

**Approach Del:**
- 14.9 x x x x x x
- Approach LOS: B

**Note:** Queue reported is the number of cars per lane.

---

**Peak Hour Delay Signal Warrant Report**

---

**Intersection #2 INDUSTRIAL AVE & GISH RD**

---
Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound
Movement: R - T - L L - T - R L - T - R R - T - L
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Lanes: 1 0 0 1 0 0 0 0 1 0 0 0 0 0 0 1 0
Initial Vol: 0 0 0 37 0 63 79 321 0 0 0 51

ApproachDel: 14.9 0 0 0 0 0 0 0 0

Approach[Southbound] [lanes=2] [control=Stop Sign]
Signal Warrant Rule #1: [vehicle-hours=0.4]
FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=100]
FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3] [total volume=997]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
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Intersection #2 INDUSTRIAL AVE & GISH RD

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound South Bound East Bound West Bound
Movement: R - T - L L - T - R L - T - R R - T - L
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Lanes: 0 0 0 0 1 0 0 1 0 0 0 0 0 0 0 1 0
Initial Vol: 0 0 0 37 0 63 79 321 0 0 0 51

Major Street Volume: 897
Minor Approach Volume: 100
Minor Approach Volume Threshold: 327

SIGNAL WARRANT DISCLAIMER
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Intersection #2: INDUSTRIAL AVE & GISHER RD

Street Name: Industrial Ave Approach: North Bound
Movement: L - T - R

Volume Module: >> Count Date: 5 Dec 2018 << 7:45-8:45 AM
Base Vol: 79 0 0 341 0 0 79 0 0 71 0 0
Growth 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 1.00 1.00
Initial Bge: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
ATI AM: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
User 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 1.00 1.00
PHF 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 1.00 1.00
PHF Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Final Volume: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Critical Gap Module:
Critical Gp:xxxxxxx 6.4 xxxx 6.2 4.1 xxxx 6.3 4.1 xxxx 6.4 4.1 xxxx
FollowUpTim:xxxxxxx 3.5 xxxx 3.3 2.2 xxxx xxxxxx

Capacity Module:
Conflict Vol: xxxxxxxxxx 1008 xxxx 509 544 xxxx xxxxxx
Potent Cap.: xxxxxxxxxx 269 xxxx 569 1035 xxxxxx
Move Cap.: xxxxxxxxxx 253 xxxx 569 1035 xxxxxx
Volume/Cap: xxxxxxxxxx 0.15 xxxx 0.11 0.08 xxxx xxxxxx

Level Of Service Module:
2Way95thQ: xxxxxxxxxx 0.5 xxxx 0.4 0.2 xxxx xxxxxx
Control Del:xxxxxxx 21.7 xxxx 12.1 8.8 xxxx xxxxxx
LOS by Move: * * * * * * * * * * * * * * * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxxxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
SharedQueue:xxxxxxx 0.2 xxxx xxxxxx
Shrd ConDel:xxxxxxx 6.8 xxxx xxxxxx
Shared LOS: * * * * * * * * * * * * * * * * * *
ApproachDelay: xxxxxxxxxx 15.7 xxxxxx

Note: Queue reported is the number of cars per lane.
Peak Hour Delay Signal Warrant Report

Intersection #2 INDUSTRIAL AVE & GISHER RD

Traffic 6.0.0715 Copyright (c) 2008 Dowling Associates, Inc. Licensed to Hexagon Trans., San Jose
Future Volume Alternative: Peak Hour Warrant NOT Met

<table>
<thead>
<tr>
<th>Approach:</th>
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<th>West Bound</th>
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<td>Movement:</td>
<td>L - T - R</td>
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<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
<td>Uncontrolled</td>
<td>Uncontrolled</td>
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<tr>
<td>Lanes:</td>
<td>0 0 0 0</td>
<td>1 0 0 1</td>
<td>0 1 0 0</td>
<td>0 0 0 1 0</td>
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<tr>
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<td>37 0 63</td>
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**SIGNAL WARRANT DISCLAIMER**

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---

**Intersection #2 INDUSTRIAL AVE & GISH RD**

Future Volume Alternative: Peak Hour Warrant NOT Met

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<td>0 0 0 1 0</td>
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<tr>
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<td>0 0 473 71</td>
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<td>Minor Approach Volume Threshold:</td>
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Intersection #2: INDUSTRIAL AVE & GISH RD

Final Vol: 67
Signal=Stop/Rights=Include
Lanes: 0 0 0 0 37

Signal=Uncontrol Rights=Include
Vol Ctrl Date: 12/5/2018
Cycle Time (sec): 100
Loss Time (sec): 0
Critical VC: 0.147
Avg Crit Del (sec/veh): 2.2
Avg Delay (sec/veh): 2.2

LOS: C

Street Name: Industrial Ave

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Volume Module: >> Count Date: 5 Dec 2018 << 7:45-8:45 AM
Base Vol: 0 0 0 37 0 63 79 341 0 0 473 51
Growth 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
Initial Bse: 0 0 0 37 0 63 79 341 0 0 473 51
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Project Tri: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 37 0 67 84 341 0 0 473 53
User 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
PHF 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
PHF Volume: 0 0 0 37 0 67 84 341 0 0 473 53
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Volume: 0 0 0 37 0 67 84 341 0 0 473 53

Critical Gap Module:
Critical Gp:xxxxx xxxx xxxx 6.4 xxxx 6.2 4.1 xxxx xxxx xxxx XXXX XXXX
FollowUpTim:xxxxx xxxx xxxx 3.5 xxxx 3.3 2.2 xxxx xxxx xxxx XXXX XXXX

Capacity Module:
Conflict Vol: xxxx xxxx xxxx 1009 xxxx 500 526 xxxx xxxx xxxx XXXX XXXX
Potent Cap.: xxxx xxxx xxxx 269 xxxx 575 1051 xxxx xxxx xxxx XXXX XXXX
Move Cap.: xxxx xxxx xxxx 251 xxxx 575 1051 xxxx xxxx xxxx XXXX XXXX
Volume/Cap: xxxx xxxx xxxx 0.15 xxxx 0.12 0.08 xxxx xxxx xxxx XXXX XXXX

Level Of Service Module:
2Way5thQs: xxxx xxxx xxxx 0.5 xxxx 0.4 0.3 xxxx xxxx xxxx XXXX XXXX
Control Del:xxxxx xxxx xxxx 21.8 xxxx 12.1 8.7 xxxx xxxx xxxx XXXX XXXX
L0S by Move: * * B A * * C
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxx xxxx xxxx xxxx xxxx xxxx XXXX XXXX XXXX XXXX
SharedQueue:xxxxx xxxx xxxx xxxx xxxx xxxx 0.3 xxxx xxxx xxxx XXXX XXXX
Shrd ConDel:xxxxx xxxx xxxx xxxx xxxx xxxx 8.7 xxxx xxxx xxxx XXXX XXXX
Shared LOS: * * * * A * * *
Approach Del: xxxxxxxx 15.5 xxxx XXXX XXXX
Approach LOS: C

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

******************************************************************************
Intersection #2 INDUSTRIAL AVE & GISH RD
******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
----------------------------------------------|------------------|------------------|------------------|------------------|
Approach:                                        | North Bound | South Bound | East Bound | West Bound |
Movement: L - T - R                              | L - T - R   | L - T - R   | L - T - R   | L - T - R   |
Control: Stop Sign                               | Stop Sign  | Uncontrolled | Uncontrolled |
Lanes: 0 0 0 0 0 0 1 0 0 0 0 1 0 1 0 0 0 0 0 0 0 0 1 0
Initial Vol: 37 0 67 84 341 0 0 473 53
Approach Del: xxxxxx xxxxxx
-------------------|------------------|------------------|------------------|------------------|
FAIL - Vehicle-hours less than 5 for two or more lane approach.
Signal Warrant Rule #2: [approach volume=104]
FAIL - Approach volume less than 150 for two or more lane approach.
Signal Warrant Rule #3: [approach count=3][total volume=1055]
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

********************************************************
Intersection #2 INDUSTRIAL AVE & GISH RD
********************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
-------------------|------------------|------------------|------------------|------------------|
Approach:                                        | North Bound | South Bound | East Bound | West Bound |
Movement: L - T - R                              | L - T - R   | L - T - R   | L - T - R   | L - T - R   |
Control: Stop Sign                               | Stop Sign  | Uncontrolled | Uncontrolled |
Lanes: 0 0 0 0 0 1 0 0 0 0 1 0 1 0 0 0 0 0 0 0 1 0
Initial Vol: 37 0 67 84 341 0 0 473 53
Major Street Volume:                            951
Minor Approach Volume:                          104
Minor Approach Volume Threshold:                308

SIGNAL WARRANT DISCLAIMER
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Intersection #2: INDUSTRIAL AVE & GISH RD

Level Of Service Computation Report
2000 HCM Unsignalized (Future Volume Alternative)
Cumulative + Prj AM

Final Vol: 36
Vol Cnt Date: 12/5/2018
Cycle Time (sec): 100
Loss Time (sec): 0
Critical V/C: 0.156
Avg Crit Del (sec/veh): 2.3
Avg Delay (sec/veh): 2.3
LOS: C

Street Name: Industrial Ave
Approach: North Bound
Movement: L T R
Volume Module: >> Count Date: 5 Dec 2018 <= 7:45-8:45 AM
Base Vol: 0 0 38 0 0 65 81 349 0 0 484 52
Growth 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
Initial Bse: 0 0 0 0 65 81 349 0 0 484 52
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Prj AM: 0 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 0 0 0 0 0 0 0 0 0 0 0 0
User 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
PHF 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
PHF Volume: 0 0 38 0 69 86 349 0 0 484 54
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Final Volume: 0 0 38 0 69 86 349 0 0 484 54

Critical Gap Module:
Critical Gp: 6.4 6.2 4.1
FollowUpTime: 3.5 3.3 2.2
Capacity Module:
Conflict Vol: 1032 511 538
Potent Cap: 260 567 1040
Move Cap: 243 567 1040
Volume/Cap: 0.16 0.12 0.08

Level Of Service Module:
2Way9thQ: 0.5 0.4 0.3
Control Del: 22.6 12.2 8.8
LOS by Move: C B A
Movement: LT LTR RT LT LTR RT LT LTR RT LT LTR RT
Shared Cap: 0.3 0.3 0.3
SharedQueue: 0.3 0.3 0.3
Shared Vol: 8.8 8.8 8.8
Approach Del: 15.9

Note: Queue reported is the number of cars per lane.
Peak Hour Delay Signal Warrant Report

Intersection #2 INDUSTRIAL AVE & GISH RD

Traffic 8.0.0745
Copyright (c) 2008 Dowling Associates, Inc.
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**SIGNAL WARRANT DISCLAIMER**

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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---

**Intersection #2 INDUSTRIAL AVE & GISH RD**

**SIGNAL WARRANT DISCLAIMER**

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Intersection #6: PROJECT DRIVEWAY & KINGS ROW

**Level Of Service Computation Report**
2000 HCM Unsignaled (Future Volume Alternative)
Background + Project AM

**Final Vol:**
- Lanes: 3 0 0 0

**Vol Cut Date:**
- Cycle Time (sec): 100
- Loss Time (sec): 0
- Critical VC: 0.006
- Avg Crit Del (sec/veh): 0.5
- Avg Delay (sec/veh): 0.5
- LOS: A

**Street Name:**
- Project Driveway
- Kings Row

**Volume Module:**

**Base Vol:**
- 0 0 0 0 0 0 0 79 0

**Growth Adj:**
- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**Initial Base:**
- 0 0 0 0 0 0 0 79 0

**Adjusted Vol:**
- 0 0 0 0 0 0 0 0 0

**Project AM:**
- 0 0 0 0 0 0 0 0 0

**Initial Fut:**
- 0 0 0 0 0 0 0 79 0

**User Adj:**
- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PHF Adj:**
- 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

**PHF Volume:**
- 0 0 0 0 0 0 0 79 0

**Reduct Vol:**
- 0 0 0 0 0 0 0 0 0

**Final Vol:**
- 0 0 0 0 0 0 0 79 0

**Critical Gap Module:**
- Critical Gp: xxxx xxxx xxxx xxxx xxxx 6.2 4.1 xxxx xxxx xxxx xxxx xxxx
- FollowUpTim: xxxx xxxx xxxx xxxx xxxx 3.3 2.2 xxxx xxxx xxxx xxxx xxxx

**Capacity Module:**
- Conflict Vol: xxxx xxxx xxxx xxxx xxxx 79 79 xxxx xxxx xxxx xxxx xxxx
- Potent Cap: xxxx xxxx xxxx xxxx xxxx 987 1532 xxxx xxxx xxxx xxxx xxxx
- Move Cap: xxxx xxxx xxxx xxxx xxxx 987 1532 xxxx xxxx xxxx xxxx xxxx
- Volume/Cap: xxxx xxxx xxxx xxxx xxxx 0.00 0.01 xxxx xxxx xxxx xxxx xxxx

**Level Of Service Module:**
- 2Way5thHQ: xxxx xxxx xxxx xxxx xxxx 0.0 0.0 xxxx xxxx xxxx xxxx xxxx
- Control Del: xxxx xxxx xxxx xxxx xxxx 8.7 7.4 xxxx xxxx xxxx xxxx xxxx
- LOS by Move: * * * A * * * * * *

**Movement:**
- LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

**Shared Cap:**
- xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
- SharedQueue: xxxx xxxx xxxx xxxx xxxx 0.0 xxxx xxxx xxxx xxxx xxxx
- Shrd ConDel: xxxx xxxx xxxx xxxx xxxx 7.4 xxxx xxxx xxxx xxxx xxxx

**Shared LOS:**
- * * * * * * A * * * *

**ApproachDel:**
- xxxxxxx 8.7 xxxxxxx xxxx

**ApproachLOS:**
- * 

**Note:** Queue report is the number of cars per lane.

**Peak Hour Delay Signal Warrant Report**

*******************************

**Intersection #6 PROJECT DRIVEWAY & KINGS ROW**

*******************************
### Future Volume

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Peak Hour Warrant NOT Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign</td>
</tr>
<tr>
<td>Lanes:</td>
<td>0 0 0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0</td>
</tr>
<tr>
<td>Initial Vol.</td>
<td>0 0 0 0 3 9 9 0 0 0 0 7 9 0</td>
</tr>
<tr>
<td>Approach 1</td>
<td>xxxxx</td>
</tr>
</tbody>
</table>

### Approach [southbound] [lanes=1] [control=Stop Sign]

**Signal Warrant Rule #1:** [vehicle-hours=0.0]
- **FAIL** - Vehicle-hours less than 4 for one lane approach.

**Signal Warrant Rule #2:** [approach volume=3]
- **FAIL** - Approach volume less than 75 for one lane approach.

**Signal Warrant Rule #3:** [approach count=3] [total volume=181]
- **FAIL** - Total volume less than 900 for intersection with less than four approaches.

---

### SIGNAL WARRANT DISCLAIMER

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---

### Intersection #6 PROJECT DRIVEWAY & KINGS ROW

<table>
<thead>
<tr>
<th>Future Volume Alternative</th>
<th>Peak Hour Warrant NOT Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign</td>
</tr>
<tr>
<td>Lanes:</td>
<td>0 0 0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0</td>
</tr>
<tr>
<td>Initial Vol.</td>
<td>0 0 0 0 3 9 9 0 0 0 0 7 9 0</td>
</tr>
<tr>
<td>Major Street Volume:</td>
<td>178</td>
</tr>
<tr>
<td>Minor Approach Volume:</td>
<td>3</td>
</tr>
<tr>
<td>Minor Approach Volume Threshold:</td>
<td>680</td>
</tr>
</tbody>
</table>

---

### SIGNAL WARRANT DISCLAIMER

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Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound | South Bound | East Bound | West Bound
Movement: L - T - R | L - T - R | L - T - R | L - T - R
Control: Stop Sign | Stop Sign | Uncontrolled | Uncontrolled
Lanes: 0 0 0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0
Initial Vol: 0 0 0 0 0 0 0 3 9 9 2 0 0 0 8 1 0
ApproachDel: xxxxxxx 8.7 xxxxxxx

Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 4 for one lane approach.

Signal Warrant Rule #2: [approach volume=3]
FAIL - Approach volume less than 100 for one lane approach.

Signal Warrant Rule #3: [approach count=3][total volume=185]
FAIL - Total volume less than 650 for intersection with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

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Peak Hour Volume Signal Warrant Report [Urban]

Intersection #6 PROJECT DRIVEWAY & KINGS ROW

Future Volume Alternative: Peak Hour Warrant NOT Met

Approach: North Bound | South Bound | East Bound | West Bound
Movement: L - T - R | L - T - R | L - T - R | L - T - R
Control: Stop Sign | Stop Sign | Uncontrolled | Uncontrolled
Lanes: 0 0 0 0 0 0 0 0 1 0 1 0 0 0 0 0 1 0 0
Initial Vol: 0 0 0 0 0 0 0 3 9 9 2 0 0 0 8 1 0

Major Street Volume: 182
Minor Approach Volume: 3
Minor Approach Volume Threshold: 674

SIGNAL WARRANT DISCLAIMER
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### Intersection #3289: N 10TH ST & OLD BAYSHORE HWY

#### Traffic Volume:
- **Final Vol:** 320
  - **Lanes:** 1 0 64 26
  - **Signal/Lane:** Split/Right
  - **Permit Rights:** Include

#### Traffic Signal:
- **Vol Cycle Date:** n/a
- **Cycle Time (sec):** 130
- **Loss Time (sec):** 9
- **Critical VC:** 0.616
- **Avg Crit Del (sec/veh):** 37.0
- **Avg Delay (sec/veh):** 37.4
- **LOS:** D

#### Street Name:
- **N 10TH ST**
- **OLD BAYSHORE HWY**

#### Traffic Movement:
<table>
<thead>
<tr>
<th>Movement</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Green</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

#### Volume Module:
- **Base Vol:** 602
  - **North Bound:** 337
  - **South Bound:** 37
  - **East Bound:** 27
  - **West Bound:** 1

#### Saturation Flow Module:
- **Sat/Lane:** 1900
  - **North:** 1900
  - **South:** 1900
  - **East:** 1900
  - **West:** 1900

#### Capacity Analysis Module:
- **Vol/Sat:** 0.26
  - **North:** 0.26
  - **South:** 0.02
  - **East:** 0.02
  - **West:** 0.13
- **Green Time:** 55.8
  - **North:** 55.8
  - **South:** 55.8
  - **East:** 55.8
  - **West:** 55.8
- **Volume/Cap:** 0.62
  - **North:** 0.62
  - **South:** 0.62
  - **East:** 0.62
  - **West:** 0.62
- **Uniform Del:** 28.8
  - **North:** 28.8
  - **South:** 28.8
  - **East:** 28.8
  - **West:** 28.8
- **Veh Delay:** 12.9
  - **North:** 12.9
  - **South:** 12.9
  - **East:** 12.9
  - **West:** 12.9
- **Delay/Veh:** 39.5
  - **North:** 39.5
  - **South:** 39.5
  - **East:** 39.5
  - **West:** 39.5
- **LOS by Move:** C C C C D D D D
- **Design Queue:** 22 22 1 1 3 19 3 3 0 2 14 6
Intersection #3289: N 10TH ST & OLD BAYSHORE HWY

Street Name: N 10TH ST

Approach: North Bound  South Bound  East Bound  West Bound

Movement: L  T  R  L  T  R  L  T  R  L  T  R  L  T  R

Min. Green: 0 0 0 10 10 10 10 10 10 7

Yield: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Volume Module:
- Base Vol: 602 337 27 26 64 320 41 105 326 34 478 93
- Growth 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 1.00 1.00
- Initial Bse: 602 337 27 26 64 320 41 105 326 34 478 93
- Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
- ATI AM: 175 76 2 0 3 3 0 17 15 0 26 20
- Initial FUt: 777 413 29 26 67 323 41 122 0 34 504 113
- User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.0 1.00 1.00 1.00 1.00 1.00
- PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.0 1.00 1.00 1.00 1.00 1.00
- PHF Vol: 777 413 29 26 67 323 41 122 0 34 504 113
- Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
- Reduced Vol: 777 413 29 26 67 323 41 122 0 34 504 113
- PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.0 1.00 1.00 1.00 1.00 1.00
- MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.0 1.00 1.00 1.00 1.00 1.00
- Final Volume: 777 413 29 26 67 323 41 122 0 34 504 113

Saturation Flow Module:
- Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
- Adjustment: 0.93 0.95 0.92 0.92 1.00 0.92 0.92 1.00 0.0 0.92 0.92 1.00 0.92
- Lanes: 0.32 0.68 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Final Sat: 2318 1232 1750 1750 1900 1750 1750 1750 3800 1750 1750 1750 1750 1750

Capacity Analysis Module:
- Vol/Sat: 0.34 0.34 0.02 0.01 0.04 0.18 0.02 0.03 0.00 0.02 0.13 0.06
- CRIT Move: **** **** **** ****
- Green Time: 62.2 62.2 62.2 34.2 34.2 34.2 24.6 24.6 0.0 24.6 24.6 24.6
- Volume/Cap: 0.70 0.70 0.03 0.06 0.13 0.70 0.12 0.17 0.00 0.10 0.70 0.34
- Uniform Del: 26.6 26.6 18.0 35.8 36.6 43.3 43.8 44.1 0.0 43.6 49.3 45.7
- Increment Del: 1.3 1.3 0.0 0.1 0.1 4.6 0.2 0.1 0.0 0.1 3.1 0.6
- Init Qued Del: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
- Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.0 1.00 1.00 1.00
- Delay/Veh: 28.0 28.0 18.0 35.9 36.7 48.0 43.9 44.3 0.0 43.7 52.4 46.3
- User Del Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.0 1.00 1.00 1.00
- Adj Del Veh: 28.0 28.0 18.0 35.9 36.7 48.0 43.9 44.3 0.0 43.7 52.4 46.3
- LOS by Move: C C C C C D D D D D D D A A D D D D
- Design Queue: 26 26 1 2 4 20 3 4 0 2 15 7
### Intersection #3289: N 10TH ST & OLD BAYSHORE HWY

**Final Vol:**
- Lanes: 42 1, 69 0, 27 1
- Signal/Perm Rights=Ignore
- Vol Crit Date: n/a 130
- Cycle Time (sec): 9
- Loss Time (sec): 2
- Critical VC: 0.758
- Avg Crit Del (sec/veh): 40.3
- Avg Delay (sec/veh): 41.4
- LOS: D

<table>
<thead>
<tr>
<th>Lanes</th>
<th>Final Vol:</th>
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<tbody>
<tr>
<td>1</td>
<td>791</td>
</tr>
<tr>
<td>0</td>
<td>42</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
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**Street Name:** N 10TH ST  
**OLD BAYSHORE HWY**

<table>
<thead>
<tr>
<th>Movement</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>T</td>
<td>R</td>
<td>L</td>
</tr>
<tr>
<td>Min. Green</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Y+R:</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
</tbody>
</table>

**Volume Module:**
- Base Vol: 791 421 30 27 69 331 42 125 349 35 515 115
- Growth 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
- Initial Bse: 791 421 30 27 69 331 42 125 349 35 515 115
- Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0
- Initial Fut: 791 421 30 27 69 331 42 125 349 35 515 115
- User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 0.00 1.00 1.00 1.00
- PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 0.00 1.00 1.00 1.00
- PHF Volume: 791 421 30 27 69 331 42 125 0 35 515 115
- Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- Reduced Vol: 791 421 30 27 69 331 42 125 0 35 515 115
- PCS Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 0.00 1.00 1.00 1.00
- MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 0.00 1.00 1.00 1.00
- Final Volume: 791 421 30 27 69 331 42 125 0 35 515 115

**Saturation Flow Module:**
- Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
- Adjustment: 0.89 0.97 0.78 0.88 1.00 0.78 0.16 1.00 0.92 0.60 1.00 0.78
- Lanes: 3.64 0.66 1.00 1.00 1.00 1.00 1.00 2.00 1.00 1.00 2.00 1.00
- Final Sat.: 2273 1210 1489 1663 1900 1488 312 3800 1750 1136 3800 1488

**Capacity Analysis Module:**
- Vol/Sat: 0.35 0.35 0.02 0.02 0.04 0.22 0.13 0.03 0.00 0.03 0.14 0.08
- Crit Move: **** ****
- Green Time: 59.6 59.6 59.6 38.1 38.1 38.1 38.1 23.2 23.2 23.2 23.2 23.2 23.2
- Volume/Cap: 0.76 0.76 0.04 0.66 0.12 0.76 0.75 0.18 0.00 0.17 0.76 0.43
- Uniform Del: 29.2 29.2 19.4 33.0 33.7 41.7 50.7 45.3 0.0 45.2 50.7 47.5
- Increment Del: 2.2 2.2 0.0 0.0 0.1 7.5 43.9 0.1 0.0 0.4 5.0 1.1
- InitQueueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
- Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
- Delay/Veh: 31.4 31.4 19.5 33.0 33.8 49.3 94.5 45.5 0.0 45.6 55.7 48.7
- User Del Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
- AdjDel/Veh: 31.4 31.4 19.5 33.0 33.8 49.3 94.5 45.5 0.0 45.6 55.7 48.7
- LOS by Move: C C B C C D F D A D E D
- HCM2kAvgQ: 22 22 1 1 2 14 3 2 0 1 11 5

Traffic 8.0.0.7.15  
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### Intersection #3554: GISH RD & OAKLAND RD

#### Traffic Analysis Details

- **Final Vol:**
  - Lanes: 4
  - Vol: 358
  - Vol: 465
  - Loss Time (sec): 9
  - Critical V/C: 0.423
  - Avg Crit Del (sec/veh): 21.3
  - Avg Delay (sec/veh): 18.3
  - LOS: B

#### Street Name: OAKLAND RD

<table>
<thead>
<tr>
<th>Movement</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>GISH RD</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>T</td>
<td>R</td>
<td>L</td>
<td>T</td>
<td>R</td>
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<tr>
<td>Min. Green</td>
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<td>10</td>
<td>0</td>
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<td>10</td>
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<td>Y+R</td>
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<td>Volume Module:</td>
<td>&gt;= Count Date: 20 Sep 2018 &lt;= 7:35 - 8:35 AM</td>
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<tr>
<td>Base Vol:</td>
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<td>0</td>
<td>485 356</td>
<td>101 0</td>
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<tr>
<td>PHF Adj:</td>
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<td>1.00 1.00 1.00</td>
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<tr>
<td>PHF Volume:</td>
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<td>0</td>
<td>485 356</td>
<td>101 0</td>
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<td>Reuct Vol:</td>
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<tr>
<td>Reduced Vol:</td>
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<td>0</td>
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<tr>
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<td>1.00 1.00 1.00</td>
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<tr>
<td>MLF Adj:</td>
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<td>Final Volume:</td>
<td>318 706</td>
<td>0</td>
<td>0</td>
<td>485 356</td>
<td>101 0</td>
</tr>
</tbody>
</table>

#### Capacity Analysis Module

- **Vol/Sat:** 0.18 0.12 0.00 0.00 0.09 0.20 0.06 0.00 0.07 0.00 0.00 0.00
- **Green Time:** 47.2 74.1 0.0 0.0 26.9 43.8 16.9 0.0 16.9 0.0 0.0 0.0
- **Volume/Cap:** 0.38 0.17 0.00 0.00 0.32 0.46 0.34 0.00 0.42 0.00 0.00 0.00
- **Increment Del:** 0.3 0.0 0.0 0.0 0.2 0.1 0.4 0.7 0.0 1.0 0.0 0.0
- **Delay Adj:** 1.00 1.00 0.00 0.00 1.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00
- **Delay/Veh:** 17.3 3.8 0.0 0.0 29.3 20.3 37.4 0.0 38.2 0.0 0.0 0.0
- **User Del 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 Del/Veh:** 17.3 3.8 0.0 0.0 29.3 20.3 37.4 0.0 38.2 0.0 0.0 0.0
- **LOS by Move:** B A A A C C D D A A A

---

Traffic 8.0.0715  
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Level Of Service Computation Report
2000 HCM Operations (Future Volume Alternative)
Background + Project AM

Intersection #3554: GISH RD & OAKLAND RD

Final Vol: 362***
Lanes: 1 0 3 0 0

Vol Cat Date: 9/20/2018
Cycle Time (sec): 100
Loss Time (sec): 9
Critical VC: 0.441
Avg Crit Del (sec/veh): 21.9
Avg Delay (sec/veh): 16.1

Lanes: Final Vol:
0 0 0 0 0

Street Name: OAKLAND RD
Approach:
Movement:
North Bound:
L  T  R
Min. Green: 7
Yield: 4.0 4.0 4.0
Volume Module: Count Date: 20 Sep 2018 << 7:35 - 8:35 AM
Base Vol: 340 828 0 0 520 361 119 0 127 0 0 0
Growth 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
Initial Bse: 340 828 0 0 520 361 119 0 127 0 0 0
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Project Tri: 1 0 0 0 0 0 0 0 0 0 0 0
Initial Fut: 341 828 0 0 520 362 119 0 127 0 0 0
User 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
PHF 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
PHF Volume: 341 828 0 0 520 362 119 0 127 0 0 0
Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 341 828 0 0 520 362 119 0 127 0 0 0
PCE 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
MLF 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
Final Volume: 341 828 0 0 520 362 119 0 127 0 0 0

Saturation Flow Module:
Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
Adjustment: 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92
Lanes: 1.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00
Sat Flow: 1750 5700 0 0 5700 1750 1750 0 1750 0 0 0

Capacity Analysis Module:
Vol/Sat: 0.19 0.15 0.00 0.00 0.09 0.21 0.07 0.00 0.07 0.00 0.00 0.00
Green Time: 48.2 74.6 0.0 0.0 26.4 42.8 16.4 0.0 16.4 0.0 0.0 0.0
Volume/Cap: 0.40 0.19 0.00 0.00 0.00 0.35 0.48 0.41 0.00 0.44 0.00 0.00
Uniform Del: 16.7 3.8 0.0 0.0 29.8 20.6 37.5 0.0 37.6 0.0 0.0 0.0
Increment Del: 0.3 0.0 0.0 0.0 0.1 0.5 1.0 0.0 1.1 0.0 0.0 0.0
Init Queue Del: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay Adj: 1.00 1.00 0.00 0.00 1.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00
Delay/Veh: 17.0 3.8 0.0 0.0 29.9 21.1 38.4 0.0 38.7 0.0 0.0 0.0
User Del 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 Del/Veh: 17.0 3.8 0.0 0.0 29.9 21.1 38.4 0.0 38.7 0.0 0.0 0.0
LOS by Move: B A A A C C D A D A A A
HCM2kAvgQ: 7 3 0 0 4 9 4 0 4 0 0 0
## Intersection #3554: GISH RD & OAKLAND RD

### Final Vol:

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<th>Signal= Prosec Rights= Overlap</th>
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<tr>
<td>Final Vol: 371***</td>
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<th>Vol. Crit Date: Cycle Time (sec):</th>
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### Street Name:

**OAKLAND RD**

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<th>GISH RD</th>
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<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
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</tr>
<tr>
<td>Min. Green:</td>
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<td>0 10 10</td>
<td>10 0 10</td>
<td>0 0 0</td>
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<td>Y-R:</td>
<td>4.0 4.0 4.0</td>
<td>4.0 4.0 4.0</td>
<td>4.0 4.0 4.0</td>
<td>4.0 4.0 4.0</td>
<td></td>
</tr>
</tbody>
</table>

### Volume Module:

- Volume Module: >> Count Date: 20 Sep 2018 << 7:35 - 8:35 AM
- Base Vol: 349 845
- Growth Adj: 1.00 1.00 1.00
- Initial Bse: 349 845
- Added Vol: 0 0 0 0
- Prj AM: 1 0 0 0
- User 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
- PHF 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
- PHF Volume: 349 845
- Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- Reduced Vol: 349 845
- PCE 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
- MLF 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
- Final Volume: 349 845

### Saturation Flow Module:

- Saturation Flow: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
- Adjustment: 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92
- Lanes: 1.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00
- Final Sat: 1750 5700 0 0 5700 1750 1750 0 1750 0 0 0

### Capacity Analysis Module:

- Vol/Sat: 0.20 0.15 0.00 0.00 0.09 0.21 0.07 0.00 0.07 0.00 0.00 0.00
- Green Time: 47.8 74.6 0.0 0.0 26.8 43.2 16.4 0.0 16.4 0.0 0.0 0.0
- Uniform Del: 17.0 3.8 0.0 0.0 29.5 20.6 37.5 0.0 37.7 0.0 0.0 0.0
- IncrementDel: 0.3 0.0 0.0 0.0 0.1 0.5 1.0 0.0 1.1 0.0 0.0 0.0
- Delay Adj: 1.00 1.00 0.00 0.00 1.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00
- Delay/Veh: 17.4 3.8 0.0 0.0 29.7 20.9 38.5 0.0 38.9 0.0 0.0 0.0
- User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Delay/Veh: 17.4 3.8 0.0 0.0 29.7 20.9 38.5 0.0 38.9 0.0 0.0 0.0
- LOS by Move: A A A A C C D A D A A
- HCM2k Avg Q: 8 3 0 0 5 9 4 0 4 0 0 0
Intersection #3555: I-880 & GISH RD

Final Vol: Lanes: 0 0 163 345***

Signal=Protec/Rights=Include

Vol Cnt Date: 12/10/2016 Cycle Time (sec): 100

Loss Time (sec): 9 Critical V/C: 0.667

Avg Cnt Del (sec/veh): 33.5

Avg Delay (sec/veh): 29.4

LOS: C

Final Vol: Lanes: 0 0 1 208

Signal=Split Rights=Include

Final Vol: Lanes: 0 0 1 302***

Street Name: I-880

Approach: North Bound South Bound East Bound GISH West Bound

Movement: L T R L T R L T R L T R

Min. Green: 0 10 10 7 10 0 0 0 0 0 10 10

Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Volume Module: >= Count Date: 5 Dec 2016 <= 7:15 - 8:15 AM

Base Vol: 0 413 139 345 163 0 0 0 0 299 0 207

Growth 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

Initial Bse: 0 413 139 345 163 0 0 0 0 299 0 207

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Prj AM: 0 0 1 4 0 0 0 0 0 3 0 1

Initial Fut: 0 413 140 345 163 0 0 0 0 302 0 208

User 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

PHF 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

PHF Volume: 0 413 140 345 163 0 0 0 0 302 0 208

Reduced Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 413 140 345 163 0 0 0 0 302 0 208

PCE 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

MLF 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

Final Vol: 0 413 140 345 163 0 0 0 0 302 0 208

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.92 1.00 0.78 0.88 1.00 0.92 0.92 1.00 0.92 0.88 1.00 0.78

Lanes: 0.00 1.00 1.00 1.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Final Sat.: 0 1900 1488 1663 1900 0 0 0 0 1663 0 1488

Capacity Analysis Module:

Vol/Sat: 0.00 0.22 0.09 0.21 0.09 0.00 0.00 0.00 0.00 0.18 0.00 0.14

Crit Moves: **** **** **** ****

Green Time: 0.0 32.6 59.9 31.1 63.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 27.3 0.0 27.3

Volume/Cap: 0.00 0.67 0.16 0.67 0.13 0.00 0.00 0.00 0.00 0.67 0.00 0.51

Uniform Del: 0.00 29.0 8.9 29.9 7.2 0.0 0.0 0.0 0.0 32.3 0.0 30.8

IncementDel: 0.00 2.8 0.1 3.3 0.1 0.0 0.0 0.0 0.0 3.8 0.0 1.1

InitQueDel: 0.00 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 0.00 1.00 1.00 1.00 1.00 0.00 0.00 0.00 0.00 1.00 0.00 1.00

Delay/Veh: 0.00 32.8 9.0 33.2 7.2 0.0 0.0 0.0 0.0 36.1 0.0 31.9

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.00 32.8 9.0 33.2 7.2 0.0 0.0 0.0 0.0 36.1 0.0 31.9

LOS by Move: A A A C A A A A A A A A

HCM2kAvgQ: 0 12 2 11 2 0 0 0 0 10 0 6
Intersection #2: INDUSTRIAL AVE & GISHER R D

Final Vol: Lanes: 94 1 0 0 0 78

Signal=Stop/Rights=Include

Vol Cnt Date: Cycle Time (sec): 12/4/2018 100
Loss Time (sec): 0
Critical VC: 0.286
Avg Crit Del (sec/veh): 3.0
Avg Delay (sec/veh): 3.0
LOS: C

51 0 1
427 0 1
0 0

Lanes: Final Vol:

Final Vol: Lanes: 0 0 0 0 0 34

Street Name: Industrial Ave
Gish Rd

Approach:
North Bound South Bound East Bound West Bound
L - T - R L - T - R L - T - R L - T - R

Volume Module: >> Count Date: 4 Dec 2018 << 5:00 - 6:00
Base Vol: 0 0 0 78 0 91 51 427 0 0 424 34
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 0 0 0 0 78 0 91 51 427 0 0 424 34
Added Vol: 0 0 0 0 0 0 0 0 0
PasserByVol: 0 0 0 0 0 0 0 0 0
Initial Ftt: 0 0 0 0 78 0 91 51 427 0 0 424 34
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 0 0 0 78 0 91 51 427 0 0 424 34
Reduct Vol: 0 0 0 0 0 0 0 0 0
FinalVolume: 0 0 0 0 78 0 91 51 427 0 0 424 34

Critical Gap Module:
Critical Gp: xxxxx xxxxx xxxxx 6.4 xxxxx 6.2 4.1 xxxxx xxxxx xxxxx xxxxx xxxxx
FollowUpTim: xxxxx xxxxx xxxxx 3.5 xxxxx 3.3 2.2 xxxxx xxxxx xxxxx xxxxx

Capacity Module:
Cntlict Vol: xxxxx xxxxx xxxxx 970 xxxxx 441 458 xxxxx xxxxx xxxxx xxxxx xxxxx
Potent Cap: xxxxx xxxxx xxxxx 283 xxxxx 621 1114 xxxxx xxxxx xxxxx xxxxx xxxxx
Move Cap.: xxxxx xxxxx xxxxx 273 xxxxx 621 1114 xxxxx xxxxx xxxxx xxxxx xxxxx
Volume/Cap: xxxxx xxxxx xxxxx 0.29 xxxxx 0.15 0.05 xxxxx xxxxx xxxxx xxxxx

Level Of Service Module:
2Way55thQ: xxxxx xxxxx xxxxx 1.1 xxxxx 0.5 0.1 xxxxx xxxxx xxxxx xxxxx xxxxx
Control Del: xxxxx xxxxx xxxxx 23.4 xxxxx 11.8 8.4 xxxxx xxxxx xxxxx xxxxx xxxxx
LOS by Move: * * * * B A * * * *
Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.: xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx
SharedQue: xxxxx xxxxx xxxxx xxxxx xxxxx 0.1 xxxxx xxxxx xxxxx xxxxx xxxxx
Shrd ConDel: xxxxx xxxxx xxxxx xxxxx xxxxx 8.4 xxxxx xxxxx xxxxx xxxxx xxxxx
Shared LOS: * * * * * A * * * *
ApproachDel: xxxxx 17.1 xxxxx xxxxx xxxxx
ApproachLOS: * C * *

Note: Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

*******************************************************************************
Intersection #2 INDUSTRIAL AVE & GISHER R D
*******************************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
--------------------------------------------------------|--|------------------|------------------|------------------|------------------|
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Lanes: 0 0 0 0 0 1 0 0 0 1 0 1 0 0 0 0 0 0 0 1 0
Initial Vol: 0 0 0 0 78 0 91 51 427 0 0 424 34
Approach Del: xxxxxxx 17.1 xxxxx 17.1 xxxxx 17.1 xxxxx
Approach [southbound] [lanes=2] [control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.8]
FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=169]
SUCCEED - Approach volume >= 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3] [total volume=1105]
SUCCEED - Total volume greater than or equal to 650 for intersection
with less than four approaches.

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"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

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a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.

Intersection #2 INDUSTRIAL AVE & GISH RD
*************************************************************
Future Volume Alternative: Peak Hour Warrant NOT Met
--------------------------------------------------------|--|------------------|------------------|------------------|------------------|
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
Control: Stop Sign Stop Sign Uncontrolled Uncontrolled
Lanes: 0 0 0 0 0 1 0 0 0 1 0 1 0 0 0 0 0 0 0 1 0
Initial Vol: 0 0 0 0 78 0 91 51 427 0 0 424 34
Major Street Volume: 936
Minor Approach Volume: 169
Minor Approach Volume Threshold: 313

SIGNAL WARRANT DISCLAIMER
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"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
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a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
Intersection #2: INDUSTRIAL AVE & GISH RD

**Signal=Stop/Rights=Include**

- **Final Vol:**
  - Lanes: 91 0 0 78
- **Vol Crit Date:** 12/5/2018
- **Cycle Time (sec):** 100
- **Loss Time (sec):** 0
- **Critical V/C:** 0.304
- **Avg Crit Del (sec/veh):** 3.0
- **Avg Delay (sec/veh):** 3.0
- **LOS:** C

---

**Street Name:** Industrial Ave  
**Approach:** North Bound  
**Volume Module:** >> Count Date: 5 Dec 2018 << 7:45-8:45 AM

<table>
<thead>
<tr>
<th>Movement</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
<th>L</th>
<th>T</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Vol</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>78</td>
<td>0</td>
<td>91</td>
<td>51</td>
<td>427</td>
<td>0</td>
</tr>
<tr>
<td>Growth Adj</td>
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<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<tr>
<td>Initial Bse</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>78</td>
<td>0</td>
<td>91</td>
<td>51</td>
<td>427</td>
<td>0</td>
</tr>
<tr>
<td>Added Vol</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ATI PM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Initial Fut</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>78</td>
<td>0</td>
<td>91</td>
<td>51</td>
<td>439</td>
<td>0</td>
</tr>
<tr>
<td>User Adj</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>PHF Adj</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
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<td>1.00</td>
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<tr>
<td>PHF Volume</td>
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<td>0</td>
<td>0</td>
<td>78</td>
<td>0</td>
<td>91</td>
<td>51</td>
<td>439</td>
<td>0</td>
</tr>
<tr>
<td>Reuct Vol</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FinalVolume</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>78</td>
<td>0</td>
<td>91</td>
<td>51</td>
<td>439</td>
<td>0</td>
</tr>
</tbody>
</table>

**Critical Gap Module:**
- **Critical Gp:** xxxx xxxx xxxx 6.4 xxxx 6.2 4.1 xxxx xxxx xxxx xxxx xxxx xxxx
- **FollowUpTim:** xxxx xxxx xxxx 3.5 xxxx 3.3 2.2 xxxx xxxx xxxx xxxx xxxx

**Capacity Module:**
- **Cnflct Vol:** xxxx xxxx xxxx 1015 xxxx 474 491 xxxx xxxx xxxx xxxx xxxx xxxx
- **Potent Cap:** xxxx xxxx xxxx 266 xxxx 595 1083 xxxx xxxx xxxx xxxx xxxx xxxx
- **Move Cap:** xxxx xxxx xxxx 256 xxxx 595 1083 xxxx xxxx xxxx xxxx xxxx xxxx
- **Volume/Cap:** xxxx xxxx xxxx 0.30 xxxx 0.15 0.05 xxxx xxxx xxxx xxxx xxxx

**Level Of Service Module:**
- **2Way95thQ:** xxxx xxxx xxxx 1.2 xxxx 0.5 0.1 xxxx xxxx xxxx xxxx xxxx xxxx
- **Control Del:** xxxx xxxx xxxx 25.1 xxxx 12.1 8.5 xxxx xxxx xxxx xxxx xxxx
- **LOS by Move:** * D * B A * * *
- **Movement:** LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
- **Shared Cap:** xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
- **SharedQueue:** xxxx xxxx xxxx xxxx xxxx xxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx
- **Shrd ConDel:** xxxx xxxx xxxx xxxx xxxx xxxx 8.5 xxxx xxxx xxxx xxxx xxxx xxxx
- **Shared LOS:** * A * * * * * * A * * * *
- **ApproachDel:** xxxx xxxx 18.1 xxxxxxx xxxxxxx
- **ApproachLOS:** C * *

**Note:** Queue reported is the number of cars per lane.

Peak Hour Delay Signal Warrant Report

Intersection #2 INDUSTRIAL AVE & GISH RD

---

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### Signal Warrant Disclaimer

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume-based signal warrant (such as the 4-hour or 8-hour warrants).

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---

### Intersection #2 INDUSTRIAL AVE & GISH RD

**Future Volume Alternative: Peak Hour Warrant NOT Met**

<table>
<thead>
<tr>
<th>Approach:</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement:</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
<td>Uncontrolled</td>
<td>Uncontrolled</td>
</tr>
<tr>
<td>Lanes:</td>
<td>0 0 0 0 0</td>
<td>1 0 0 0 1</td>
<td>0 1 0 0 0</td>
<td>0 0 0 1 0</td>
</tr>
<tr>
<td>Initial Vol:</td>
<td>0 0 78 0 91</td>
<td>51 439 0 0 457 34</td>
<td>18.1 80 91 51 439 0</td>
<td>0 457 34</td>
</tr>
</tbody>
</table>

**Major Street Volume:** 981

**Minor Approach Volume:** 169

**Minor Approach Volume Threshold:** 298

---

**SIGNAL WARRANT DISCLAIMER**

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**Intersection #2: INDUSTRIAL AVE & GISHD RD**

**Final Vol:**
- **Signal=Stop/Right lane=Include:**
  - 55 0
  - 439 0
  - 0 0

- **Vol Cat Date:** 12/5/2018
- **Cycle Time (sec):** 100
- **Loss Time (sec):** 0
- **Critical Vic:** 0.316
- **Avg Crit Del (sec/veh):** 3.2
- **Avg Delay (sec/veh):** 3.2
- **LOS:** C

**Street Name:**
- Industrial Ave
- Gish Rd

<table>
<thead>
<tr>
<th>Approach</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Volume Module:</td>
<td>&gt;= Count Date: 5 Dec 2018 &lt;= 7:45-8:45 AM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Vol:</td>
<td>0 0 0</td>
<td>78 0 91</td>
<td>51 439 0</td>
<td>0 457 34</td>
</tr>
<tr>
<td>Growth Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
</tr>
<tr>
<td>Initial Bae:</td>
<td>0 0 0</td>
<td>78 0 91</td>
<td>51 439 0</td>
<td>0 457 34</td>
</tr>
<tr>
<td>Added Vol:</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>Project PM:</td>
<td>0 0 0</td>
<td>2 0 6</td>
<td>4 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>Initial Put:</td>
<td>0 0 0</td>
<td>80 0 97</td>
<td>55 439 0</td>
<td>0 457 34</td>
</tr>
<tr>
<td>User Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
</tr>
<tr>
<td>PHF Adj:</td>
<td>1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
<td>1.00 1.00 1.00</td>
</tr>
<tr>
<td>PHF Volume:</td>
<td>0 0 0</td>
<td>80 0 97</td>
<td>55 439 0</td>
<td>0 457 34</td>
</tr>
<tr>
<td>Reduct Vol:</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
<td>0 0 0</td>
</tr>
<tr>
<td>FinalVolume:</td>
<td>0 0 0</td>
<td>80 0 97</td>
<td>55 439 0</td>
<td>0 457 34</td>
</tr>
</tbody>
</table>

- Critical Gap Module:
  - Critical Gp: xxxxxxx xxxxxxx xxxxxxx 6.4 xxxx 6.2 4.1 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

- FollowUpTm: xxxxxxx xxxxxxx xxxxxxx 3.5 xxxx 3.3 2.2 xxxxxx xxxxxx xxxxxx xxxxxx

- Capacity Module:
  - Conflct Vol: xxxxxxx xxxxxxx xxxxxxx 1023 xxxx 474 491 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
  - Potent Cap.: xxxxxxx xxxxxxx xxxxxxx 263 xxxx 595 1083 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
  - Move Cap.: xxxxxxx xxxxxxx xxxxxxx 253 xxxx 595 1083 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
  - Volume/Cap.: xxxxxxx xxxxxxx xxxxxxx 0.32 xxxx 0.16 0.05 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

- Level Of Service Module:
  - 2Way95L/Q: xxxxxxx xxxxxxx xxxxxxx 1.3 xxxx 0.6 0.2 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx
  - Control Del: xxxxxxx xxxxxxx xxxxxxx 25.7 xxxx 12.2 8.5 xxxxxx xxxxxx xxxxxx xxxxxx xxxxxx

- LOS by Move:
  - LT - LTR - RT LT - LTR - RT LT - LTR - RT
  - Shared Cap.: xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx
  - Shrd ConDel: xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx xxxxxxx
  - Shared LOS: * * * * * * A * * * * C

- Approach Del: xxxxxxx 18.3 xxxxxxx xxxxxxx

**Note:** Queue reported is the number of cars per lane.

**Peak Hour Delay Signal Warrant Report**

**Intersection #2 INDUSTRIAL AVE & GISHER RD**

---

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---

**Intersection #2 INDUSTRIAL AVE & GISH RD**

<table>
<thead>
<tr>
<th>Approach Alternative:</th>
<th>Peak Hour Warrant NOT Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach: L - T - R</td>
<td>--</td>
</tr>
<tr>
<td>Movement: Stop Sign</td>
<td>--</td>
</tr>
<tr>
<td>Lanes:</td>
<td></td>
</tr>
<tr>
<td>Initial Vol:</td>
<td></td>
</tr>
<tr>
<td>Approach Delay:</td>
<td></td>
</tr>
<tr>
<td>Major Street Volume:</td>
<td>985</td>
</tr>
<tr>
<td>Minor Approach Volume:</td>
<td>177</td>
</tr>
<tr>
<td>Minor Approach Volume Threshold:</td>
<td>297</td>
</tr>
</tbody>
</table>

---

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Intersection #2: INDUSTRIAL AVE & GISH RD

Street Name: Industrial Ave  Gish Rd

Approach: North Bound  South Bound  East Bound  West Bound
Movement:  L  T  R  L  T  R  L  T  R  L  T  R

Volume Module: >> Count Date: 5 Dec 2018 << 7:45-8:45 AM
Base Vol:  0  0  0  82  0  99  56  449  0  0  467  35
Growth 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
Initial Bse:  0  0  0  82  0  99  56  449  0  0  467  35
Added Vol:  0  0  0  0  0  0  0  0  0  0  0  0
PasserByVol:  0  0  0  0  0  0  0  0  0  0  0  0
Initial Put:  0  0  0  82  0  99  56  449  0  0  467  35
User 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
PHF 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
PHF Volume:  0  0  0  82  0  99  56  449  0  0  467  35
Reduct Vol:  0  0  0  0  0  0  0  0  0  0  0  0
Final Volume:  0  0  0  82  0  99  56  449  0  0  467  35

Critical Gap Module:
Critical Gp:  xxxx  xxxx  xxxx  6.4  xxxx  6.2  4.1  xxxx  xxxx  xxxx  xxxx  xxxx
Follow Up Time:  xxxx  xxxx  xxxx  3.5  xxxx  3.3  2.2  xxxx  xxxx  xxxx  xxxx  xxxx

Capacity Module:
Conflict Vol:  xxxx  xxxx  xxxx  1046  xxxx  465  502  xxxx  xxxx  xxxx  xxxx  xxxx
Potent Cap.:  xxxx  xxxx  xxxx  255  xxxx  587  1073  xxxx  xxxx  xxxx  xxxx  xxxx
Move Cap.:  xxxx  xxxx  xxxx  245  xxxx  587  1073  xxxx  xxxx  xxxx  xxxx  xxxx
Volume/Cap.:  xxxx  xxxx  xxxx  0.33  xxxx  0.17  0.05  xxxx  xxxx  xxxx  xxxx  xxxx

Level Of Service Module:
2WayStHoQ:  xxxx  xxxx  xxxx  1.4  xxxx  0.6  0.2  xxxx  xxxx  xxxx  xxxx  xxxx
Control Del:  xxxx  xxxx  xxxx  26.9  xxxx  12.4  8.5  xxxx  xxxx  xxxx  xxxx  xxxx
LOS by Move:  * * D * B A D * * * * * *
Movement:  LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT
Shared Cap.:  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx
SharedQueue:  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx
Shrd ConDel:  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx
Shared LOS:  * * * * * A * * * * * *
Approach Del:  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx  xxxx
Approach LOS: * C * *

Note: Queue reported is the number of cars per lane.
Peak Hour Delay Signal Warrant Report

*******************************************************************************
Intersection #2 INDUSTRIAL AVE & GISH RD
*******************************************************************************
## SIGNAL WARRANT DISCLAIMER

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---

**Intersection #2 INDUSTRIAL AVE & GISH RD**

<table>
<thead>
<tr>
<th>Future Volume Alternative: Peak Hour Warrant NOT Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach:</td>
</tr>
<tr>
<td>North Bound</td>
</tr>
<tr>
<td>Movement:</td>
</tr>
<tr>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
</tr>
<tr>
<td>Stop Sign</td>
</tr>
<tr>
<td>Lanes:</td>
</tr>
<tr>
<td>0 0 0 0 0 1 0 0 0 0 0 0 0 1 0</td>
</tr>
<tr>
<td>Initial Vol:</td>
</tr>
<tr>
<td>0 0 0 82 0 99 56 849 0 0 0 67 35</td>
</tr>
<tr>
<td>ApproachDel:</td>
</tr>
<tr>
<td>xxxxxx 19.0 xxxxxx</td>
</tr>
</tbody>
</table>

FAIL - Vehicle-hours less than 5 for two or more lane approach.
SUCCEED - Approach volume >= 150 for two or more lane approach.
SUCCEED - Total volume greater than or equal to 650 for intersection with less than four approaches.

---

**Intersection #3 INDUSTRIAL AVE & GISH RD**

<table>
<thead>
<tr>
<th>Future Volume Alternative: Peak Hour Warrant NOT Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approach:</td>
</tr>
<tr>
<td>North Bound</td>
</tr>
<tr>
<td>Movement:</td>
</tr>
<tr>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
</tr>
<tr>
<td>Stop Sign</td>
</tr>
<tr>
<td>Lanes:</td>
</tr>
<tr>
<td>0 0 0 0 0 1 0 0 0 0 0 0 0 1 0</td>
</tr>
<tr>
<td>Initial Vol:</td>
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<tr>
<td>0 0 0 82 0 99 56 849 0 0 0 67 35</td>
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<tr>
<td>Major Street Volume:</td>
</tr>
<tr>
<td>1007</td>
</tr>
<tr>
<td>Minor Approach Volume:</td>
</tr>
<tr>
<td>181</td>
</tr>
<tr>
<td>Minor Approach Volume Threshold: 290</td>
</tr>
</tbody>
</table>

**SIGNAL WARRANT DISCLAIMER**

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### Intersection #6: PROJECT DRIVEWAY & KINGS ROW

![Traffic Signal Diagram]

**Street Name:**

<table>
<thead>
<tr>
<th>Approach</th>
<th>Project Driveway</th>
<th>Kings Row</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Movement:</strong></td>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Volume Module:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base Vol:</strong></td>
</tr>
<tr>
<td><strong>Growth Adj:</strong></td>
</tr>
<tr>
<td><strong>Initial Bse:</strong></td>
</tr>
<tr>
<td><strong>Added Vol:</strong></td>
</tr>
<tr>
<td><strong>Project PM:</strong></td>
</tr>
<tr>
<td><strong>Initial Fut:</strong></td>
</tr>
<tr>
<td><strong>User Adj:</strong></td>
</tr>
<tr>
<td><strong>PHF Adj:</strong></td>
</tr>
<tr>
<td><strong>PHF Volume:</strong></td>
</tr>
<tr>
<td><strong>Reduct Vol:</strong></td>
</tr>
<tr>
<td><strong>Final Volume:</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Critical Gap Module:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Critical Gp:</strong> xxxxx xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Follow Up Time:</strong> xxxxx xxxxx xxxxx xxxxx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Capacity Module:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conflict Vol:</strong> xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Potent Cap.:</strong> xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Move Cap.:</strong> xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Volume/Cap:</strong> xxxxx xxxxx xxxxx</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Level Of Service Module:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2Way25thQ:</strong> xxxxx xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Control Del.:</strong> xxxxx xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>LOS by Move:</strong> * * * * A A A A A A</td>
</tr>
<tr>
<td><strong>Movement:</strong> LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT</td>
</tr>
<tr>
<td><strong>Shared Cap.:</strong> xxxxx xxxxx xxxxx xxxxx XXXX xxxxx xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>SharedQueue:</strong> xxxxx xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Shrd Con Del:</strong> xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Shrd LOS:</strong> * * * * * A * * * *</td>
</tr>
<tr>
<td><strong>Approach Del:</strong> xxxxx xxxxx</td>
</tr>
<tr>
<td><strong>Approach LOS:</strong> * A</td>
</tr>
</tbody>
</table>

*Note: Queue reported is the number of cars per lane.*

---

**Peak Hour Delay Signal Warrant Report**

---

Trans 4.0.9715

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Future Volume Alternative: Peak Hour Warrant NOT Met

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Approach: North Bound | South Bound | East Bound | West Bound

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Movement: L - T - R | L - T - R | L - T - R | L - T - R

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Control: Stop Sign | Stop Sign | Uncontrolled | Uncontrolled

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Lanes: 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 1 0 0

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Initial Vol: 0 0 0 0 9 3 102 0 0 0 150 0

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Approach Del: xxxxxx 9.0 xxxxxx

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Approach [southbound] [lanes=2] [control=Stop Sign]

Signal Warrant Rule #1: [vehicle-hours=0.0]
FAIL - Vehicle-hours less than 5 for two or more lane approach.

Signal Warrant Rule #2: [approach volume=9]
FAIL - Approach volume less than 150 for two or more lane approach.

Signal Warrant Rule #3: [approach count=3] [total volume=264]
FAIL - Total volume less than 650 for intersection
with less than four approaches.

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.

Peak Hour Volume Signal Warrant Report [Urban]

***********************************************

Intersection #6 PROJECT DRIVEWAY & KINGS ROW
***********************************************

Future Volume Alternative: Peak Hour Warrant NOT Met

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Approach: North Bound | South Bound | East Bound | West Bound

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Movement: L - T - R | L - T - R | L - T - R | L - T - R

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Control: Stop Sign | Stop Sign | Uncontrolled | Uncontrolled

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Lanes: 0 0 0 0 0 1 0 0 0 1 0 0 0 0 0 1 0 0

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Initial Vol: 0 0 0 0 9 3 102 0 0 0 150 0

-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|

Major Street Volume: 255

Minor Approach Volume: 9

Minor Approach Volume Threshold: 722

SIGNAL WARRANT DISCLAIMER
This peak hour signal warrant analysis should be considered solely as an
"indicator" of the likelihood of an unsignalized intersection warranting
a traffic signal in the future. Intersections that exceed this warrant
are probably more likely to meet one or more of the other volume based
signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace
a rigorous and complete traffic signal warrant analysis by the responsible
jurisdiction. Consideration of the other signal warrants, which is beyond
the scope of this software, may yield different results.
### Future Volume Alternative: Peak Hour Warrant NOT Met

<table>
<thead>
<tr>
<th>Movement:</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
<td>Uncontrolled</td>
<td>Uncontrolled</td>
</tr>
<tr>
<td>Lanes:</td>
<td>0 0 0 0 0</td>
<td>1 0 0 0 1</td>
<td>0 1 0 0 0</td>
<td>0 0 1 0 0</td>
</tr>
<tr>
<td>Initial Vol:</td>
<td>0 0 0 0 0</td>
<td>1 0 0 0 1</td>
<td>0 1 0 0 0</td>
<td>0 0 1 0 0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approach[lanes=2] [control=Stop Sign]</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAIL - Vehicle-hours less than 5 for two or more lane approach.</td>
</tr>
<tr>
<td>Signal Warrant Rule #2: [approach volume=9]</td>
</tr>
<tr>
<td>FAIL - Approach volume less than 150 for two or more lane approach.</td>
</tr>
<tr>
<td>Signal Warrant Rule #3: [approach count=3] [total volume=270]</td>
</tr>
<tr>
<td>FAIL - Total volume less than 650 for intersection with less than four approaches.</td>
</tr>
</tbody>
</table>

### SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.

---

### Intersection #6 PROJECT DRIVEWAY & KINGS ROW

<table>
<thead>
<tr>
<th>Movement:</th>
<th>North Bound</th>
<th>South Bound</th>
<th>East Bound</th>
<th>West Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Control:</td>
<td>Stop Sign</td>
<td>Stop Sign</td>
<td>Uncontrolled</td>
<td>Uncontrolled</td>
</tr>
<tr>
<td>Lanes:</td>
<td>0 0 0 0 0</td>
<td>1 0 0 0 1</td>
<td>0 1 0 0 0</td>
<td>0 0 1 0 0</td>
</tr>
<tr>
<td>Initial Vol:</td>
<td>0 0 0 0 0</td>
<td>1 0 0 0 1</td>
<td>0 1 0 0 0</td>
<td>0 0 1 0 0</td>
</tr>
</tbody>
</table>

| Major Street Volume: | 261 |
| Minor Approach Volume: | 9 |
| Minor Approach Volume Threshold: | 715 |

### SIGNAL WARRANT DISCLAIMER

This peak hour signal warrant analysis should be considered solely as an "indicator" of the likelihood of an unsignalized intersection warranting a traffic signal in the future. Intersections that exceed this warrant are probably more likely to meet one or more of the other volume based signal warrant (such as the 4-hour or 8-hour warrants).

The peak hour warrant analysis in this report is not intended to replace a rigorous and complete traffic signal warrant analysis by the responsible jurisdiction. Consideration of the other signal warrants, which is beyond the scope of this software, may yield different results.
Intersection #3289: N 10TH ST & OLD BAYSHORE HWY

Street Name: N 10TH ST

Approach: N 10TH ST

Movement: L - T - R

Min. Green: 10 10 10

Y+R: 4.0 4.0 4.0

Volume Module: >> Count Date: 12 Dec 2018 << 4:15-5:15

Base Vol: 133 271 30

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 133 271 30

Added Vol: 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0

Initial Fut: 133 271 30

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Saturation Flow Module:

Sat./Lane: 1900 1900 1900

Adjustment: 0.92 1.00 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92

Final Sat.: 1750 1900 1750 1750 1750 1750 1750 3800 1750 3800

Capacity Analysis Module:

Vol./Sat: 0.08 0.14 0.02 0.02 0.09 0.16 0.10 0.12 0.00 0.06 0.05 0.05

Note: Queue reported is the number of cars per lane.
Intersection #3289: N 10TH ST & OLD BAYSHORE HWY

Street Name: N 10TH ST
Approach: North Bound
Movement: L - T - R
Min. Green: 10 10 10 10 10 10 10 10 10
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0

Volume Module:
Base Vol: 133 271 30 41 169 288 171 453 1398 112 173 88
Growth 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
Initial Bae: 133 271 30 41 169 288 171 453 1398 112 173 88
Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
ATI PM: 59 57 11 0 0 0 0 0 24 19 0 18 12
Initial Fut: 192 328 41 41 175 294 171 477 1417 112 191 100
User 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
PHF 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
PHF Volume: 192 328 41 41 175 294 171 477 112 191 100
Reduce Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduction Vol: 192 328 41 41 175 294 171 477 112 191 100
PCF 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
MLF 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
Final Volume: 192 328 41 41 175 294 171 477 112 191 100

Capacity Analysis Module:
Vol/Sat: 0.11 0.17 0.02 0.02 0.09 0.17 0.10 0.13 0.00 0.06 0.05 0.06
Crit Moves: **** **** ****
Green Time: 33.7 33.7 33.7 32.8 32.8 32.8 24.5 24.5 0.0 24.5 24.5 24.5
Volume/Cap: 0.33 0.51 0.07 0.07 0.28 0.51 0.40 0.51 0.00 0.26 0.21 0.23
Uniform Del: 24.7 26.6 22.5 23.1 24.9 27.1 31.6 32.6 0.0 30.4 30.0 30.2
Incrnt Del: 0.1 0.4 0.1 0.1 0.2 0.8 0.6 0.5 0.0 0.3 0.1 0.3
InitQued Del: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
Delay 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
Delay/Veh: 24.8 27.0 22.6 23.2 25.1 27.9 32.2 33.1 0.0 30.8 30.1 30.5
User Del 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 Del Veh: 24.8 27.0 22.6 23.2 25.1 27.9 32.2 33.1 0.0 30.8 30.1 30.5
LOS by Move: C C C C C A C C C
HCM2kAvgQ: 5 8 1 1 4 8 5 7 0 3 2 3

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Intersection #328: N 10TH ST & OLD BAYSHORE HWY

**Level Of Service Computation Report**
2000 HCM Operations (Future Volume Alternative)
Background = Project PM

**Final Vol:**
- Lanes: 1 0 0 1

**Vol Ctr Date:**
- Cycle Time (sec): 100
- Loss Time (sec): 9
- Critical V/C: 0.512
- Avg Ctrl Del (sec/veh): 29.5
- Avg Delay (sec/veh): 29.0

**LOS:** C

<table>
<thead>
<tr>
<th>Street Name:</th>
<th>N 10TH ST</th>
<th>OLD BAYSHORE HWY</th>
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</thead>
<tbody>
<tr>
<td>Approach:</td>
<td>North Bound</td>
<td>South Bound</td>
</tr>
<tr>
<td>Movement:</td>
<td>L - T - R</td>
<td>L - T - R</td>
</tr>
<tr>
<td>Min. Green:</td>
<td>10 10 10</td>
<td>10 10 10</td>
</tr>
<tr>
<td>Y+R:</td>
<td>4.0 4.0 4.0 4.0 4.0</td>
<td>4.0 4.0 4.0 4.0 4.0</td>
</tr>
</tbody>
</table>

**Volume Module:**
- Base Vol: 192 328 41 41 175 294 171 477 1417 112 191 100
- Growth 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
- Initial Base: 192 328 41 41 175 294 171 477 1417 112 191 100
- Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- Project Tri: 0 0 0 0 0 0 0 0 0 0 0 0
- Initial Fut: 192 328 41 41 175 294 171 477 1417 112 191 100
- User 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
- PHF 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
- PHF Volume: 192 328 41 41 175 294 171 477 0 112 191 100
- Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
- Reduced Vol: 192 328 41 41 175 294 171 477 0 112 191 100
- PCE 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
- MLF 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
- Final Volume: 192 328 41 41 175 294 171 477 0 112 191 100

**Saturation Flow Module:**
- Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
- Adjustment: 0.92 1.00 0.92 1.00 0.92 1.00 0.92 1.00 0.92 1.00 0.92 1.00
- Lanes: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Final Sat.: 1750 1900 1750 1750 1900 1750 1750 3800 1750 1750 3800 1750

**Capacity Analysis Module:**
- Vol/Sat: 0.11 0.17 0.02 0.02 0.09 0.17 0.10 0.13 0.00 0.06 0.05 0.06
- Crit Moves: **** **** ****
- Green Time: 33.7 33.7 33.7 32.8 32.8 32.8 24.5 24.5 0.0 24.5 24.5 24.5
- Volume/Cap: 0.33 0.51 0.07 0.07 0.26 0.28 0.51 0.40 0.51 0.00 0.26 0.21 0.23
- Uniform Del: 24.7 26.8 22.5 23.1 24.9 27.1 31.6 32.6 0.0 30.4 30.0 30.2
- IncremDel: 0.1 0.4 0.1 0.1 0.2 0.8 0.6 0.5 0.0 0.3 0.1 0.3
- InitQueDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
- Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 1.00
- Delay/Veh: 24.8 27.0 22.6 23.2 25.1 27.9 32.2 33.1 0.0 30.8 30.1 30.5
- User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- AdjDel/Veh: 24.8 27.0 22.6 23.2 25.1 27.9 32.2 33.1 0.0 30.8 30.1 30.5
- LOS by Move: C C C C C C A C C C
- HCM2kAvgQ: 5 8 1 1 4 8 5 7 0 3 2 3

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### Intersection #3554: GISH RD & OAKLAND RD

**Level Of Service Computation Report**  
2000 HCM Operations (Future Volume Alternative)  
Existing PM

**Final Vol:**  
**Lanes:**  
Signal=Split Rights=Include  
- Final Vol:  
  - Lanes:  
    - 218  
    - 111  
    - 90  
    - 0  
    - 0  
    - 0  
    - 0  

**Vol Cut Date:**  
- Cycle Time (sec): 90  
- Loss Time (sec): 0  
- Critical V/C: 0.431  
- Avg Crit Del (sec/veh): 19.5  
- Avg Delay (sec/veh): 16.0  
- LOS: B

**Street Name:** OAKLAND RD  
**Approach:**  
**Movement:**  
- North Bound  
- South Bound  
- East Bound  
- West Bound

**Min. Green:**  
- 7  
- 10  
- 4.0  
- 4.0  
- 4.0  
- 4.0  
- 4.0  
- 4.0  

**Y/R:**  
- 4.0  
- 4.0  
- 4.0  
- 4.0  
- 4.0  
- 4.0  
- 4.0  

**Volume Module:**  
- Count Date: 20 Sep 2018 <= 7:35 - 8:35 AM

**Base Vol:**  
- 96 521  
- 199 0 240 0 0 0 0

**Growth 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

**Initial Bse:**  
- 96 521  
- 0 1117 218  
- 199 0 240 0 0 0

**Added Vol:**  
- 0 0 0 0 0 0 0 0 0 0 0 0

**PasserByVol:**  
- 0 0 0 0 0 0 0 0 0 0 0 0

**Initial Fut:**  
- 96 521  
- 0 1117 218  
- 199 0 240 0 0 0

**User 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

**PHF 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

**PHF Volume:**  
- 96 521  
- 0 1117 218  
- 199 0 240 0 0 0

**Reduct Vol:**  
- 0 0 0 0 0 0 0 0 0 0 0 0

**Reduced Vol:**  
- 96 521  
- 0 1117 218  
- 199 0 240 0 0 0

**Rese 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

**MLF 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

**Final Volume:**  
- 96 521  
- 0 1117 218  
- 199 0 240 0 0 0

**Saturation Flow Module:**  
- Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

**Adjustment:**  
- 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92 0.92 1.00 0.92

**Lanes:**  
- 1.00 3.00 0.00 0.00 3.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00

**Final Sat.:**  
- 1750 5700 0 0 5700 1750 1750 0 1750 0 0 0

**Capacity Analysis Module:**  
- Vol/Sat: 0.05 0.09 0.00 0.00 0.20 0.12 0.11 0.00 0.14 0.00 0.00 0.00

**Crq Moves:** * ****

**Green Time:**  
- 11.5 52.4 0.0 0.0 40.9 69.5 28.6 0.0 28.6 0.0 0.0 0.0

**Volume/Cap:**  
- 0.43 0.16 0.00 0.00 0.43 0.16 0.36 0.00 0.43 0.00 0.00 0.00

**Uniform Del:**  
- 36.3 8.7 0.0 0.0 16.6 23.6 0.0 24.2 0.0 0.0 0.0 0.0

**Increment Del:**  
- 1.3 0.0 0.0 0.0 0.1 0.1 0.4 0.0 0.5 0.0 0.0 0.0

**InitQueue Del:**  
- 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

**Delay Adj:**  
- 1.00 1.00 0.00 0.00 1.00 1.00 1.00 0.00 1.00 0.00 0.00 0.00

**Delay/Veh:**  
- 37.6 8.7 0.0 0.0 16.8 24.0 0.0 24.8 0.0 0.0 0.0 0.0

**User Del 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

**AdjDel/Veh:**  
- 37.6 8.7 0.0 0.0 16.8 24.0 0.0 24.8 0.0 0.0 0.0 0.0

**LOS by Move:**  
- A A A B A C A C A A A

**HCM2kAvgQ:**  
- 3 2 0 0 7 2 5 0 6 0 0 0

---

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Intersection #3554: GISH RD & OAKLAND RD

### Street Name:
- **OAKLAND RD**
- **GISH RD**

### Approach

#### Movement
- **North Bound**
- **South Bound**
- **East Bound**
- **West Bound**

#### Vol & Sat
- **Vol: 255**
- **Sat: 1900**

### Critical Moves
- **Vol/Cap:**
  - 0.48
  - 0.48
  - 0.48
  - 0.48

#### Volume/Cap
- **0.48**
- **0.48**
- **0.48**
- **0.48**

### LOS by Move
- **D**
- **A**
- **A**
- **C**
- **A**
- **A**
- **A**

---

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**Intersection #3555: I-880 & GISH RD**

**Street Name:** I-880

**Approach:** North Bound, South Bound, East Bound, GISH, West Bound

<table>
<thead>
<tr>
<th>Movement</th>
<th>L - T - R</th>
<th>L - T - R</th>
<th>L - T - R</th>
<th>L - T - R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Green</td>
<td>0 10 10</td>
<td>7 10 0</td>
<td>0 0 0</td>
<td>10 0 10</td>
</tr>
<tr>
<td>Y+R</td>
<td>4.0 4.0 4.0</td>
<td>4.0 4.0 4.0</td>
<td>4.0 4.0 4.0</td>
<td>4.0 4.0 4.0</td>
</tr>
<tr>
<td>Volume Mod</td>
<td>364 299 198 82</td>
<td>364 299 198 82</td>
<td>364 299 198 82</td>
<td>364 299 198 82</td>
</tr>
<tr>
<td>Growth Adj</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial Bsc</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
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<tr>
<td>Added Vol</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
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</tr>
<tr>
<td>PasserByVol</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
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<tr>
<td>Initial Fut</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User Adj</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
<td></td>
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<tr>
<td>PHP Adj</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
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<tr>
<td>PHP Vol</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
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<tr>
<td>Reduct Vol</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
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<td></td>
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<tr>
<td>Reduced Vol</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCI Adj</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MLF Adj</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td>1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Volume</td>
<td>0 0 0 0 0 0 0 0</td>
<td>0 0 0 0 0 0 0 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Saturation Flow Module:**
- Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900
- Adjustment: 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92 0.92
- Lanes: 0.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
- Final Sat: 1900 1750 1750 1900 1750 1750 1750 1750 1750 1750 1750 1750 1750 1750 1750 1750 1750 1750

**Capacity Analysis Module:**
- Vol/Sat: 0.00 0.19 0.17 0.11 0.04 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
- Crit Moves: 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 0.00 0.00
- Volume/Cap: 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 0.00 0.00
- Uniform Del: 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 0.00 0.00
- Increment Del: 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 0.00 0.00
- InitQueDel: 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 0.00 0.00
- Delay Adj: 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 0.00 0.00
- Delay/Veh: 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 0.00 0.00
- User DelAdj: 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 0.00 0.00
- AdjDel/Veh: 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 0.00 0.00
- LOS by Move: A C A D B A A A A A A A A A A A A
- HCM2kAvgQ: 0 10 3 7 1 0 0 0 0 0 12 0 3
Appendix E
Signal Warrant Sheets
**Warrant 3, Part B - Peak-Hour Vehicular Volume**

![Graph of Warrant 3, Part B - Peak-Hour Vehicular Volume](image)

Source: Figure 4C-3 *California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2010 Edition, as amended for use in California)*.

*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.*

**Warrant 3, Part B - Peak-Hour Vehicular Volume**

<table>
<thead>
<tr>
<th>Approach Lanes</th>
<th>AM PEAK PERIOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Street - Both Approaches</td>
<td>I-880 Off Ramp / X 478 492 496</td>
</tr>
<tr>
<td>Minor Street - Highest Approach</td>
<td>Gish Road X 467 541 542</td>
</tr>
</tbody>
</table>

*Signal Warranted Based on Part B - Peak-Hour Volumes? Yes Yes Yes*

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.*
Warrant 3, Part B - Peak-Hour Vehicular Volume

Source: Figure 4C-3 California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA’s MUTCD 2010 Edition, as amended for use in California).

* 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.

Warrant 3, Part B - Peak-Hour Vehicular Volume

<table>
<thead>
<tr>
<th>Approach Lanes</th>
<th>Major Street - Both Approaches</th>
<th>Minor Street - Highest Approach</th>
<th>PM PEAK HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or More</td>
<td>I-880 Off Ramp / X</td>
<td>Gish Road X</td>
<td>266 / 271 / 274</td>
</tr>
<tr>
<td>1 or More</td>
<td></td>
<td></td>
<td>572 / 648 / 649</td>
</tr>
</tbody>
</table>

Signal Warranted Based on Part B - Peak-Hour Volumes? No No No

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.
**Warrant 3, Part B - Peak-Hour Vehicular Volume**

<table>
<thead>
<tr>
<th>Approach Lanes</th>
<th>AM PEAK PERIOD</th>
<th>2 or More</th>
<th>One</th>
<th>One &amp; One</th>
<th>2 or More &amp; 2 or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Street - Both Approaches</td>
<td>Gish Road</td>
<td>X</td>
<td>897</td>
<td>964</td>
<td>951</td>
</tr>
<tr>
<td>Minor Street - Highest Approach</td>
<td>Industrial Avenue</td>
<td>X</td>
<td>100</td>
<td>100</td>
<td>104</td>
</tr>
</tbody>
</table>

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.*

**Signal Warranted Based on Part B - Peak-Hour Volumes?**

- No
- No
- No

*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.*

Source: Figure 4C-3 *California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2010 Edition, as amended for use in California).*

File: SigWarrant_2010MUTCD -Industrial Ave & Gish Rd
Tab: Warrant 3, Part B-Graph (AM)
**Warrant 3, Part B - Peak-Hour Vehicular Volume**

Source: Figure 4C-3 California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2010 Edition, as amended for use in California).

*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.*

### Warrant 3, Part B - Peak-Hour Vehicular Volume

<table>
<thead>
<tr>
<th>Approach</th>
<th>PM PEAK HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing</td>
</tr>
<tr>
<td>Major Street - Both Approaches Gish Road</td>
<td>X</td>
</tr>
<tr>
<td>Minor Street - Highest Approach Industrial Avenue</td>
<td>X</td>
</tr>
</tbody>
</table>

**Signal Warranted Based on Part B - Peak-Hour Volumes?** | No | No | No |

*Warrant is satisfied if plotted points fall above the appropriate curve in graph above.*