Transportation Impact Study for the Cotati Village Project

Prepared for the City of Cotati

Submitted by
W-Trans

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Executive Summary

The project as proposed includes the construction of 177 multifamily housing units and 29,415 square feet of commercial office and retail uses. The project site is located at the northeast corner of the intersection of State Route (SR) 116/Alder Avenue and would be accessed via a driveway from Alder Avenue, two driveways from Ford Lane, and a future roadway called Village Avenue that would connect to SR-116 across from where West Cotati Avenue is planned to be relocated. The project is expected to generate an average of 2,251 new daily trips, including 110 a.m. peak hour trips and 176 p.m. peak hour trips.

With respect to multimodal circulation, the site is served by Sonoma County Transit and facilities for transit riders are adequate. There are gaps in the sidewalk network in the vicinity of the project, though the project would provide a multi-use path along the SR-116 frontage, sidewalks along internal project streets, and potentially interim off-site improvements to provide connections to the existing pedestrian network. Existing facilities for bicyclists, including use of the street network, are adequate to accommodate bicyclists.

The project would be expected to have a less-than-significant impact in terms of vehicle miles traveled. An eastbound left-turn lane is warranted at the intersection of SR-116/Alder Avenue based on typical existing volumes without the addition of project trips, though the below-average collision rate indicates that there is not an existing safety concern at this location. The City's General Plan calls for truncating Alder Avenue north of SR-116 and eliminating this intersection; if the existing SR-116/Alder Avenue intersection is retained, left-turn lanes should be added at the intersections of SR-116/Alder Avenue and SR-116/West Cotati Avenue as part of the planned future widening of SR-116 as identified in the City's General Plan and Traffic Impact Fee (TIF).

Sight distances at the proposed project access points along Alder Avenue as well as the SR-116/Alder Avenue intersection were determined to be adequate. Emergency access would be expected to operate acceptably and the project would have a less-than-significant impact on emergency response.

The study intersections are currently operating acceptably and would be expected to continue doing so with project trips added as well as with trips from other pending and approved projects added. While the Alder Avenue approach to SR-116 would be expected to deteriorate to LOS E operation with trips from the proposed project and other projects added, acceptable operation could be achieved by restriping the approach to include separate left-turn and right-turn lanes. It is noted that this improvement would not be needed without the Red's Residential project, which is still in the entitlement process, so this modification could be deferred and assigned to this Baseline project.

For analysis of future conditions, it was assumed that the existing SR-116/Alder Avenue intersection would be replaced by a new signalized intersection approximately 500 feet to the west, as envisioned in the City's General Plan and that West Cotati Avenue would be realigned to eliminate the existing skewed angle where it intersects SR-116. The analysis therefore reflects modified or relocated intersections for the future scenarios. The study intersections are expected to operate acceptably under anticipated future volumes and with the addition of project-related trips.

The project as proposed includes 273 on-site parking spaces, of which some spaces may be shared with the adjacent property to the north. A minimum of 251 spaces would be exclusively devoted to the project, exceeding the 231 spaces required under City code based on application of deductions for density bonus projects, including the reduction for vertical mixed-use projects.

Introduction

This report presents an analysis of the potential transportation impacts and adverse traffic operational effects that would be associated with development of 177 proposed multifamily housing units, eighteen of which would be designated as affordable and 75 of which would be in buildings that would include 29,415 square feet of ground-floor retail on a currently vacant site at the northeast corner of SR-116/Alder Avenue in the City of Cotati. The traffic study was completed in accordance with the criteria established by the City and is consistent with standard traffic engineering techniques.

Prelude

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

Applied Standards and Criteria

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

Would the project:

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

Project Profile

The project as proposed includes developing a currently vacant lot into 176 residential units plus a manager's unit; eighteen of the units would be designated as affordable and 75 units would be in buildings that would include 29,415 square feet of ground-floor retail. The project site is located in the CG (Commercial, Gravenstein Corridor) Zoning District. The zoning code allows for a density of 15 units per acre, which would allow for 118 units; but by providing 15 percent of the required residential units (18 units) to very low-income households, the project is eligible under the State Density Bonus Law for a density bonus of 50 percent.

As part of the project a 19-foot-wide easement along the southern boundary of the property would be dedicated as public right-of-way to allow for the planned widening of SR-116. Additionally, the western half of a planned future extension of West Cotati Avenue to the north of SR-116 along the eastern boundary of the project would be paved for interim use as an emergency vehicle access.

The project site is located at the northeast corner of SR-116/Alder Avenue in the City of Cotati, as shown in Figure 1.

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Figure 1 – Study Area and Existing Lane Configurations

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Transportation Setting

Study Area and Periods

The study area varies depending on the topic. For pedestrian trips it consists of all streets within a half-mile of the project site that would lie along primary routes of pedestrian travel, or those leading to nearby generators or attractors. For bicycle trips it consists of all streets within one mile of the project site that would lie along primary routes of bicycle travel. For the safety and operational analyses, it consists of the project frontage and the following intersections, two of which are existing and one of which is planned to be replaced by a signalized intersection in the future.

1. SR-116/Alder Avenue (Existing and Baseline Conditions only)
2. SR-116/West Cotati Avenue
3. SR-116/New North-South Street (Future Conditions only)

Operating conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. Counts were obtained for the study intersections on Wednesday, February 23, 2022, during these peak periods and while local schools were in session.

Study Intersections

SR-116/Alder Avenue is a tee intersection stop-controlled on the southbound approach. SR-116/Alder Avenue is planned to be eliminated in the future and traffic would be diverted to a new intersection west of the existing location, with a cul-de-sac replacing the southern terminus of Alder Avenue just north of SR-116.

SR-116/West Cotati Avenue is a tee intersection with stop controls on the northbound approach, which includes a flared right-turn pocket. The westbound approach has a channelized right turn. The City's General Plan calls for the realignment of the West Cotati Avenue approach so that it intersects SR-116 at more of a right angle instead of the current skewed approach. Village Avenue, a new street at the project site's easterly border, would form the north leg of the intersection upon relocation.

SR-116/New North-South Street is a planned signalized intersection that would replace the existing SR-116/Alder Avenue intersection and be located about 500 feet west of the existing intersection. SR-116/New North-South Street would have protected left-turn phasing on all approaches and right-turn overlaps on the new street approaches. The New North-South Street would extend to Helman Lane to the north and connect with Alder Avenue via Derby Lane, which would be realigned for this purpose.

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

Vehicle Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates were calculated based on records available from the California Highway Patrol as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is August 1, 2016, through July 31, 2021.

As presented in Table 1, the calculated collision rates for the existing study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2018 Collision Data on California State*

Highways, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). The study intersections have collision rates below or only nominally above the statewide average, indicating that there are no apparent operational safety concerns. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates for the Study Intersections

Study Intersection	Number of Collisions (2016-2021)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. SR-116/Alder Ave	2	0.07	0.09
2. SR-116/W Cotati Ave	3	0.10	0.09

Note: c/mve = collisions per million vehicles entering

Project Data

The project consists of 177 multi-family housing units along with 29,415 square feet of commercial space that could be retail or office uses on a currently vacant site. The proposed project site plan is shown in Figure 2.

Trip Generation

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021 for "Strip Retail Plaza" (Land Use #822) and "Multi-Family Housing (Low-Rise)" (Land Use #220). The commercial space was conservatively assumed to be all retail uses for purposes of the operational analysis as the trip generation rate during the critical evening peak hour is higher for retail than for office uses. Additionally, the commercial space was rounded to an even 30,000 square feet to provide a more conservative analysis.

Internal Capture Trips

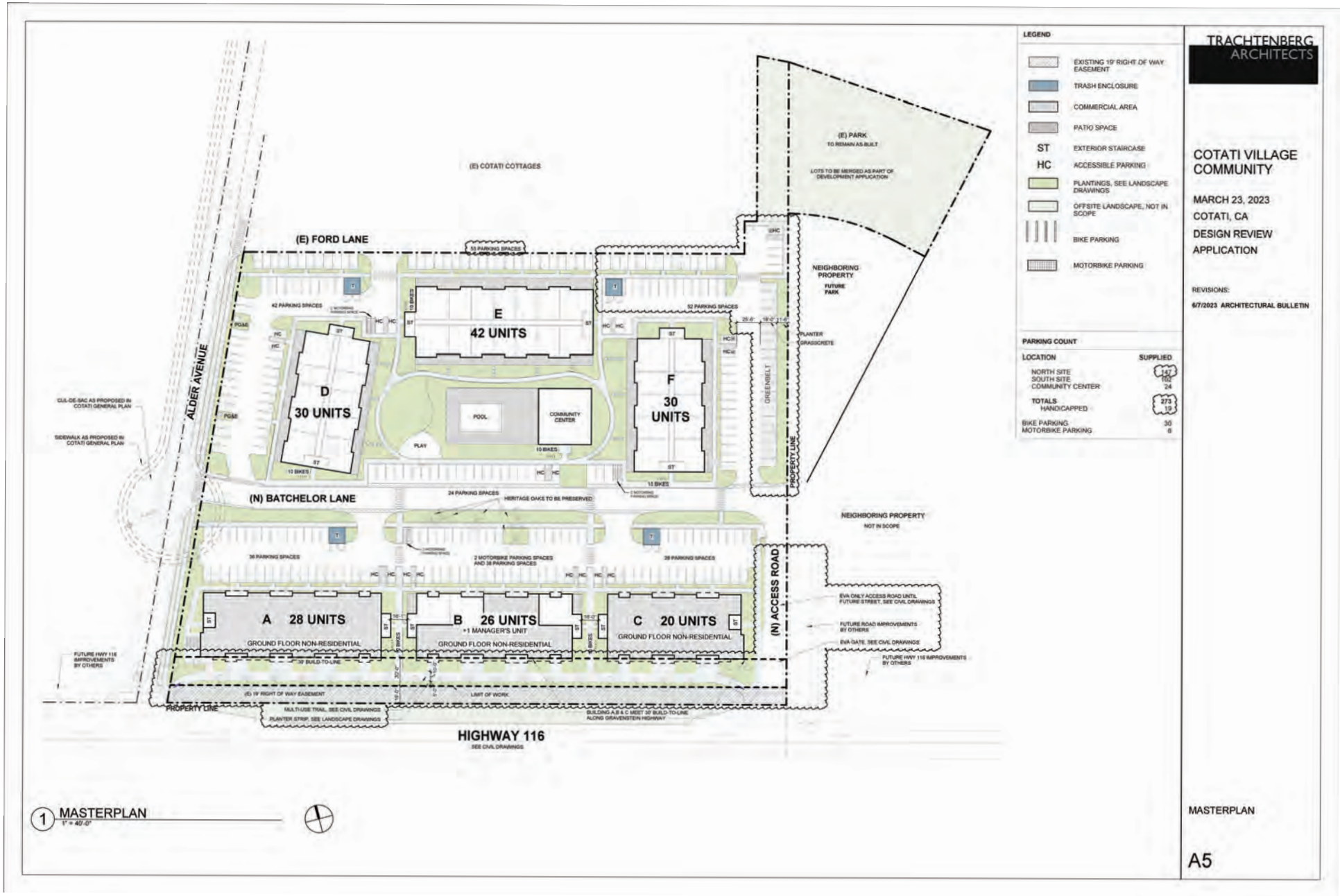
Internal trips occur at mixed-use developments, and in the case of the project would consist of residents patronizing adjacent retail uses, as well as employees of nonresidential uses patronizing other nonresidential uses. The majority of these trips would be made by walking, and any that might be made by automobile would only travel on-site, so would not affect the adjacent street network; such internal trips may also include visits to more than one business. Copies of the spreadsheets indicating the derivation of the internal capture rates are provided in Appendix B along with the projected trip generation of the proposed project.

Pass-by Trips

As is typical of most retail uses, a portion of the trips associated with the retail area would be drawn from existing traffic on nearby streets. These vehicle trips, known as pass-by trips, are not considered new trips since they consist of drivers who are already driving on the adjacent street and choose to make an interim stop. In the case of the proposed retail area, most trips would be diverted from traffic passing by the site on SR-116. Data published in the *Trip Generation Manual* does not indicate pass-by percentages for a "Strip Retail Plaza" (Land Use #822), so data for "Shopping Center" (Land Use #821), the most similar available land use, was used instead. The pass-by trip percentages are 40 percent during the evening peak hour, and this percentage was also applied to the morning peak hour. To estimate the number of daily trips that would be pass-by, a rate of 20 percent was applied for informational purposes. The pass-by deduction was calculated after removal of the estimated internal capture trips.

Total Project Trip Generation

The expected trip generation potential for the proposed project is shown in Table 2 with deductions taken for internal capture and pass-by trips. The project has the potential to result in an average of 2,251 new daily trips on local streets, with 110 new trips during the weekday a.m. peak hour and 176 new trips during the weekday p.m. peak hour.



Source: Design Draw Build Architecture and Construction 5/23

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Figure 2 – Site Plan

Table 2 – Trip Generation Summary											
Land Use	**Units**	**Daily**		**AM Peak Hour**				**PM Peak Hour**			
Deductions		**Rate**	**Trips**	**Rate**	**Trips**	**In**	**Out**	**Rate**	**Trips**	**In**	**Out**
Strip Retail Plaza	29.4 ksf	54.45	1,602	2.36	69	42	27	6.59	194	97	97
*Internal Capture**			*-123*		*-2*	*-1*	*-1*		*-19*	*-7*	*-12*
Subtotal			***1,479***		***67***	***41***	***26***		***175***	***90***	***85***
Pass-By		*-20%*	*-296*	*-40%*	*-26*	*-16*	*-10*	*-40%*	*-70*	*-36*	*-34*
MF Housing (Low-Rise)	177 du	6.74	1,193	0.40	71	17	54	0.51	90	57	33
Internal Capture		-10.5%	*-125***	*-2%*	*-2*	*-1*	*-1*	*21%*	*-19*	*-12*	*-7*
Total			**2,251**		**110**	**41**	**69**		**176**	**99**	**77**

Note: du = dwelling unit; ksf = 1,000 square feet; MF = Multifamily * Internal capture for retail use is the opposite end of trips estimated for the residential use; ** Daily internal trips estimated using the average percentages of a.m. and p.m. peak hour internal trips.

Trip Distribution

The pattern used to allocate new project trips to the street network was determined based on a review of existing turning movements at the study intersection, observations of neighborhood travel circulation, and knowledge of traffic patterns in the area and surrounding region. Data previously collected at the existing housing on Alder Avenue indicates that residents will travel out of their way to use Helman Lane and Redwood Drive to access eastbound SR-116 via the signalized intersection at Redwood Drive, though given the proximity of this site to SR-116, a smaller portion of trips were assumed to take this longer route. It was assumed that 50 percent of outbound trips would travel northbound on Alder Avenue to Helman Lane. Of these outbound trips, 20 percent would travel out of their way to get to use a signal to access SR-116; the remaining 30 percent of trips using this route would continue north on Redwood Drive. As inbound traffic from the east would be turning right into the site and therefore receive minimal benefit from the use of a traffic signal, all inbound trips from the east were assumed to stay on SR-116 rather than route via Helman Lane. The applied distribution assumptions and resulting daily trips are shown in Table 3.

Table 3 – Trip Distribution Assumptions						
Route	**Percent In/Out**	**Daily Trips**	**AM Trips**		**PM Trips**	
			In	**Out**	**In**	**Out**
Alder Ave/Helman Ln	30/50%	900	12	35	30	37
SR-116 (West of Alder Ave)	25%	563	10	17	25	20
SR-116 (East of Alder Ave)	45/25%	788	19	17	44	20
TOTAL	**100%**	**2,251**	**41**	**69**	**99**	**77**

Circulation System

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

Pedestrian Facilities

Existing and Planned Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, access for pedestrians is limited within the vicinity of the proposed project site due to large gaps in the sidewalk system. These existing gaps and obstacles along the connecting roadways impact convenient and continuous access for pedestrians and present safety concerns in those locations where appropriate pedestrian infrastructure would address potential conflict points.

- **Alder Avenue** – Sidewalk coverage is provided only on the east side of Alder Avenue from SR-116 to the City limits north of Ford Lane; pedestrian-scale lights are provided. No sidewalk coverage or lighting is provided between Helman Lane and the Cottages, the small residential complex adjacent to the project site. In general, Alder Avenue is a narrow rural street that provides access to the Cottages. Rural streets typically contain minimal sidewalk coverage and lighting. Crosswalks are proposed at the intersection with SR-116, according to the *Cotati Bicycle and Pedestrian Master Plan*, Sonoma County Transportation Authority, 2014.
- **West Cotati Avenue** – Intermittent sidewalk coverage is provided on the west side of West Cotati Avenue with significant gaps throughout the street between Cohen Court and Cotati Oaks Court Village, as well as between Maple Avenue and Clifford Street. Lighting is provided by overhead streetlights, with pedestrian-scale lighting where sidewalks are present. In general, West Cotati Avenue is a local street that provides access to residences on both sides. The *Cotati Bicycle and Pedestrian Master Plan* proposes improvements to the sidewalk network along West Cotati Avenue between SR-116 and West Cotati Oaks and on portions of Madrone Avenue.
- **SR-116** – Sidewalk coverage is provided on both sides of SR-116 east of Redwood Drive and on the properties adjacent to the Redwood Drive intersection. West of Redwood Drive, including along the project frontage, pedestrian access is available along shoulders. Lighting is provided by overhead streetlights, which are more prevalent east of Redwood Drive.

Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians in the vicinity of the project site. For the same five-year study period used for the vehicle collision analysis of August 1, 2016, through July 31, 2021, there were no reported collisions involving pedestrians at the study intersections indicating that there are no readily apparent existing safety issues for pedestrians.

Project Impacts on Pedestrian Facilities

Given the proximity of commercial and residential destinations near the site, it is reasonable to assume that some project patrons and employees would want to walk, bicycle, and/or use transit to reach the project site. Upon construction of sidewalks and crosswalks along the project frontages on SR-116 and along the internal project streets, the project site would be connected to the pedestrian facilities that currently exist near the site. A network of sidewalks and crosswalks would be provided throughout the project site, resulting in connected on-site pedestrian circulation. The project includes a Class I multi-use path along the SR-116 frontage to provide pedestrian and bicycle access. It is expected that incoming development on the site to the east of the project would include frontage improvements that would connect the project to the larger pedestrian network.

Finding – Upon constructing the Class I path along the project frontage along SR-116 and sidewalks along the new project streets, the project site would be connected to the existing pedestrian network and circulation for pedestrians in the area would be improved, though still inadequate. Planned future improvements to be constructed as part of other developments or by the City would provide adequate pedestrian facilities.

Recommendation – It is recommended that the project provide an all-weather path along the north side of SR-116 to provide interim pedestrian connectivity between the project site and the existing sidewalk to the east, assuming that the right-of-way is available or can be secured by the City. If a development on the site east of the project is approved, that project would presumably include frontage improvements, making the provision of the all-weather path unnecessary.

Bicycle Facilities

Existing and Planned Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

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

In the project area, a Class I path exists on Commerce Boulevard between the Laguna de Santa Rosa Trail and Enterprise Drive in the City of Rohnert Park, and the Laguna de Santa Rosa Trail extends from Commerce Boulevard to East Cotati Avenue. A Class II bike lane is planned on Madrone Place next to Thomas Page Academy. Class II bike lanes exist on SR-116, Old Redwood Highway, Redwood Drive, Commerce Boulevard, and for a short (less than 100 feet) segment of Alder Avenue north of SR-116, and are planned on Richardson Lane and West Cotati Avenue. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 4 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *Cotati Bicycle and Pedestrian Master Plan*, 2014.

Table 4 – Bicycle Facility Summary				
Status **Facility**	**Class**	**Length (miles)**	**Begin Point**	**End Point**
Existing				
Alder Ave	II	0.02	North of SR-116	SR-116
Commerce Blvd	II	0.10	Old Redwood Hwy	Cotati City Limits
Redwood Dr	II	0.60	Cotati City Limits	SR-116
Old Redwood Hwy	II	0.50	US 101	E Cotati Ave
SR-116	II	0.25	Redwood Dr	Old Redwood Hwy
West Cotati Ave	III	0.34	SR-116	W Cotati Oaks Ct
Gilman Ranch Rd	III	0.16	W Cotati Ave	End
Planned				
Trail	I	0.15	Madrone Ave	Gilman Ranch Dr
SR-116	II	7.30	Redwood Dr	Sebastopol
W School St/Richardson Ln	II	0.65	Miyob Ranch	US 101
West Cotati Ave	II	0.34	SR-116	W Cotati Oaks Ct

Source: *Cotati Bicycle and Pedestrian Master Plan*, Sonoma County Transportation Agency, 2014

Bicyclist Safety

Collision records for the study area were reviewed to determine if any bicyclist-involved crashes were reported. During the five-year study period between August 1, 2016, and July 31, 2021, there were no reported collisions involving bicyclists at any of the study intersections indicating that there are no readily apparent safety issues for cyclists.

Project Impacts on Bicycle Facilities

The project includes a Class I facility to be constructed along the SR-116 frontage to provide access for pedestrians and bicyclists and connect to future facilities along adjacent properties. These facilities, along with planned facilities and existing bicycle lanes and minor streets in the vicinity of the project site would provide adequate access for bicyclists.

Finding – Facilities to be constructed as part of the project, in addition to existing bicycle facilities, including bicycle lanes on SR-116, and shared use of minor streets provide adequate access for bicyclists.

Bicycle Storage

Based on Section 17.36.070 of the Cotati Municipal Code, multifamily residential projects must provide bicycle parking spaces equal to a minimum of one space for every ten motor vehicle spaces. These parking spaces must be conveniently located near the primary entrance, must include a stationary parking device, and must be at least two feet wide and six feet long. For the proposed supply of 273 spaces, this translates to a required supply of 27 bicycle parking spaces; if the number of on-site vehicle parking spaces is reduced, the required bicycle parking spaces would be reduced accordingly. As indicated in the site plan, 30 bicycle parking spaces are proposed.

Finding – Bicycle parking proposed as part of the project would be adequate.

Transit Facilities

Existing Transit Facilities

The Sonoma County Transit Agency (SCT) provides fixed route bus service in the City of Cotati. SCT Local Routes #12 and #14 provide loop service to destinations throughout Cotati and Rohnert Park and stops on Houser Street and Redwood Drive. Route #26 runs between Mirabel Park to the west and Sonoma State University to the east and stops on Highway 116 at Alder Avenue.

Golden Gate Transit provides a regional bus service along the US 101 corridor between Santa Rosa and San Francisco with a stop at Old Redwood Highway/St Joseph Way, approximately one-half mile from the project site.

Existing transit routes and their operation are summarized in Table 5.

Table 5 – Transit Routes

Transit Agency Route	Distance to Stop (mi)[1]	Service			Connection
		Days of Operation	Time	Frequency	
Sonoma County Transit Agency					
Route #12	0.9	Mon – Fri Sat	6:25 a.m. – 5:55 p.m. 9:10 a.m. – 4:10 p.m.	0.75 – 1.75 hours 1.75 hours	Houser St/Redwood Dr to Northern Rohnert Park
Route #14	0.9	Mon – Sat	7:45 a.m.	Once a day	Houser St/Redwood Dr to Northern Rohnert Park
Route #26 EB	0.0	Mon – Fri (School Days)	8:04 a.m.	Once a day	Hwy-116/Alder Ave to Sonoma State University
Route #26 WB	0.0	Mon – Fri (School Days)	3:53 p.m.	Once a day	Hwy-116/Alder Ave to Mirabel Park
Golden Gate Transit					
Route #101 NB	0.6	Mon – Sun	7:10 a.m. – 1:07 a.m.	1 – 1.25 hours	Old Redwood Hwy/ St Joseph Wy to Santa Rosa
Route #101 SB	0.6	Mon – Sun	4:15 a.m. – 10:18 p.m.	1 – 1.25 hours	Old Redwood Hwy/ St Joseph Wy to SF

Note: [1] Defined as the shortest walking distance between the project site and the nearest bus stop; SF = San Francisco
Source: www.sctransit.com, www.goldengate.org

Two or three bicycles can be carried on the front of all SCT buses. Bike rack space is on a first come, first served basis. Riders are responsible for loading and unloading their bicycles.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. SCT Paratransit is designed to serve the needs of individuals with disabilities within three quarters of a mile of their fixed-route transit services within Cotati and Sonoma County.

Impact on Transit Facilities

Existing stops served by SCT Route #26 are within an acceptable walking distance of the site. The project would not be expected to negatively impact transit operations and existing transit routes are adequate to accommodate project-generated transit trips.

Finding – Existing transit facilities serving the project site are adequate.

Vehicle Miles Traveled (VMT)

The potential for the project to conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) was evaluated based the project's anticipated Vehicle Miles Traveled (VMT). Senate Bill (SB) 743 established the change in Vehicle Miles Traveled (VMT) as a result of a project as the basis for determining California Environmental Quality Act (CEQA) impacts with respect to transportation and traffic.

The project-related VMT was assessed by applying the City of Cotati's *Guidelines for Analysis of Vehicle Miles Traveled (VMT)*, adopted in September 2020. The California Governor's Office of Planning and Research (OPR) publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, 2018, was also referenced. Per the City's policy, VMT for mixed use projects was assessed by applying the significance thresholds for each use.

Residential VMT

For residential projects, VMT is assessed using vehicle miles traveled per capita as estimated in the Sonoma County Transportation Authority (SCTA) travel demand model. VMT per capita measures home-based trips, or trips that have the place of residence as one of the trip ends. Based on data from the February 2022 update of the SCTA model, the City of Cotati has a baseline average residential VMT of 18.3 miles per capita. Applying the City guidelines, a residential project generating a VMT that is 15 percent or more below this value, or 15.5 miles per capita or less, would have a less-than-significant VMT impact. The SCTA model includes traffic analysis zones (TAZ) covering geographic areas throughout Sonoma County, and the Cotati Village project site is located within TAZ 425, which has a baseline VMT per capita of 20.2 miles. For the project to achieve the applied VMT significance threshold of 15.5 miles per capita, its VMT would need to be 23.2 percent lower than the average for the project TAZ.

The VMT associated with a development project is influenced by factors including density and the provision of onsite affordable housing. The publication *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, California Air Pollution Control Officers Association (CAPCOA), 2021, includes a methodology to determine the VMT reductions associated with increases in residential density, using conventional single-family home development as a baseline. The typical single-family residential development has a density of 9.1 units per acre; by comparison, the project proposes 177 units on a 7.8-acre site, or 22.6 units per acre. Applying the reductions as indicated in the CAPCOA report, the project's proposed density would reduce its per capita VMT by 30 percent, thereby resulting in a project-specific rate of 14.2 VMT/capita. This is below the applied VMT significance threshold of 15.5 VMT/capita. Accordingly, the residential component of the project as proposed would be expected to result in a less-than-significant VMT impact. The VMT findings are shown in Table 6, and information including a summary of the input variables and adjustments is included in Appendix C.

Table 6 – Vehicle Miles Traveled Analysis Summary – Residential Component

VMT Metric	Baseline VMT Rate	Significance Threshold	Project VMT Rate	Resulting Significance
Residential VMT per Capita (Citywide Baseline)	18.3	15.5	14.2	Less than Significant

Note: VMT Rate is measured in VMT/Capita, or the number of daily miles driven per resident

The City guidelines also note that the inclusion of affordable housing may reduce a project's per capita VMT, although only projects consisting of 100 percent affordable units are recommended for screening from VMT analysis. As proposed, the project would include 18 affordable units to be designated for very low-income households; this is with incomes up to 50 percent of the median household income level. The inclusion of affordable housing has been found to reduce residential project VMT per capita to some degree, though since the

project is not 100 percent affordable no reduction was assumed in this analysis. Since it is likely that some level of reduction would be associated with the inclusion of affordable units, the analysis is conservative.

Retail VMT

The City VMT guidelines state that a retail project is considered to have a significant VMT impact if it would result in a net increase in regional total VMT. The policy notes that local-serving retail up to 10,000 square feet would be screened from VMT analysis. The OPR guidance recommends screening local-serving retail from VMT analysis since they introduce a greater mix of services into the urban fabric, resulting in improved proximity of retail to many residents and thereby resulting in shorter trips and a reduction in total VMT. By contrast, regional-serving retail uses would tend to draw customers from longer distances, thereby increasing VMT. OPR suggests a threshold for regional-serving retail of 50,000 square feet, but notes that many local agencies provide definitions in their zoning codes, and notes that locally-established criteria may reflect a unique understanding of local conditions.

The project as proposed would include ground floor retail in three of the project buildings, totaling 29,415 square feet of retail space. Given the size of these uses, the location of the site, and based on consultation with City staff, it is expected that these retail uses would be local-serving, as they would primarily cater to residents of Cotati as well as pass-by traffic from US 101 and SR-116. Since the proposed retail uses would be local-serving, it is assumed that they would not result in an increase in total VMT and could therefore be screened from a more detailed VMT analysis.

Finding – The project's VMT impact for both the residential and retail portions of the project would be expected to be less than significant.

Safety Issues

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance and need for turn lanes at the project accesses as well as the adequacy of stacking space in dedicated turn lanes at the study intersections to accommodate additional queuing due to adding project-generated trips and need for additional right-of-way controls. This section addresses the third bullet on the CEQA checklist which is whether or not the project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Site Access

The project site would be accessed via two connections to Ford Lane to the north; Alder Avenue to the west via Ford Lane and Batchelor Lane; and a future north-south street on the east side of the project site (identified on the site plan as "Village Avenue") that would be an extension of the realigned West Cotati Avenue. The Alder Avenue driveway (identified on the site plan as the internal project street "Batchelor Lane") would be approximately 250 feet north of SR-116, while Village Avenue would intersect SR-116 approximately 600 feet east of Alder Avenue.

Sight Distance

Sight distances along SR-116 and Alder Avenue at the project access points were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance at intersections of public streets is based on corner sight distances, with more sight distance needed for making a left turn versus a right turn, while recommended sight distances for minor street approaches that are either a private road or a driveway are based on stopping sight distance. Both use the approach travel speeds as the basis for determining the recommended sight distance.

Sight distances were reviewed for the locations where the project would create new connections to public streets. Alder Avenue has a speed limit of 35 mph, which corresponds to a minimum corner sight distance of 385 feet. Sight distances were evaluated at the new proposed access point on Alder Avenue. At the proposed Batchelor Lane access point, sight lines extend more than 400 feet to the north and are clear to the intersection with SR-116 to the south. Currently clear sight lines should be kept free of signs, structures, and tall landscaping, and any trees associated with the project should be carefully located to avoid placement within sight triangles.

For the posted 45-mph speed limit on SR-116 the minimum corner sight distance needed at the proposed future Village Avenue is 500 feet for left turns and 430 feet for right turns. Assuming the sight triangle would be free of obstructions, approximately 550 feet of sight distance would be available in each direction, which is adequate.

Finding – Sight lines are adequate to accommodate all turns into and out of the project access points.

Recommendation – Adequate sight lines should be maintained during the design and construction of project access points, and the placement of any signs, structures, or tall landscaping on Alder Avenue or SR-116 that would impede sight lines should be avoided.

Access Analysis

Left-Turn Lane Warrants

The need for left-turn lanes on SR-116 at Alder Avenue and at the proposed project street connection across from the proposed realigned West Cotati Avenue was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as an update of the methodology developed by the Washington State Department of Transportation and published in the *Method for Prioritizing Intersection Improvements*, January

1997. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues.

An analysis of traffic volumes collected in March 2022 determined that the left-turn lane warrant was not met during either peak hour. Using Existing plus Project volumes, an eastbound left-turn lane would be warranted at SR-116/Alder Avenue based on volumes expected during both peak hours.

Since volumes in 2022 may still reflect the impacts on travel patterns associated with the COVID-19 pandemic, and since the intersection had a collision rate below the average, indicating that there is not a safety issue which require remediation, a left-turn lane warrant analysis for this intersection conducted in 2017 for a potential development project at the same site was reviewed. This analysis showed that a left-turn lane was warranted under existing volumes at that time. A comparison of the turning movement counts collected in 2017 and 2022 revealed that there were 89 additional westbound vehicles on SR-116 during the p.m. peak hour in 2017 compared with 2022. Similarly, there were 18 more eastbound vehicles turning left onto Alder Avenue in 2017 than in 2022 (29 left-turning vehicles in 2017 compared with 11 in 2022). Since the 2017 volumes were collected prior to the COVID-19 pandemic, they are assumed to represent typical conditions. As a result, it was concluded that the turn lane is warranted without the addition of project trips.

The need for an eastbound left-turn lane at the SR-116/West Cotati Avenue intersection was also evaluated as with realignment of the intersection, the north leg would provide a project access point. Using Baseline plus Project volumes, an eastbound left-turn lane on SR-116 at West Cotati Avenue would not be warranted. A sensitivity analysis was performed to calculate the portion of remaining future build-out growth beyond the Baseline horizon that would need to occur to satisfy the left-turn lane warrant at SR-116/West Cotati Avenue during the a.m. and p.m. peak hours. It was determined that the warrant would become satisfied during the a.m. peak hour after approximately ten percent of future build-out growth occurs beyond the Baseline plus Project scenario and during the p.m. peak hour after approximately five percent of future growth beyond the Baseline plus Project scenario would be needed. Assuming uniform growth to projected build-out conditions, this translates to the warrants being satisfied in approximately 2028 to 2029.

The *Traffic Impact Fee Study*, 2015 prepared by W-Trans for the City of Cotati, identifies the widening of SR-116 between Madrone Avenue and Redwood Drive as a future improvement, including the provision of turn pockets, such as an eastbound left-turn lane at Alder Avenue. The planned widening of SR-116 could be completed either as part of the project or through the project's TIF contribution; it is a matter of City policy to determine how this improvement is to be funded.

The left-turn lane warrant spreadsheets using the 2017 and 2022 volumes are contained in Appendix D.

Left-turn Lane Design Requirements

The projected maximum left-turn queue lengths were determined using a methodology contained in "Estimating Maximum Queue Length at Unsignalized Intersections," John T. Gard, *ITE Journal*, November 2001. Using Baseline plus Project volumes, the maximum eastbound left-turn queue on SR-116 at Alder Avenue would be no more than two vehicles, so it is recommended that the storage be based on two passenger cars, or 50 feet. Copies of the queue length calculations are contained in Appendix D.

Finding – An eastbound left-turn lane at the intersection of SR-116/Alder Avenue was determined to be warranted without the addition of project trips, based on 2017 traffic volumes. Existing volumes are not sufficient to warrant an eastbound left-turn lane at West Cotati Avenue based on 2022 volumes, but it is expected that the warrant would become satisfied during the a.m. peak hour after approximately ten percent of future growth beyond the Baseline plus Project scenario occurs and during the p.m. peak hour after approximately five percent of future growth beyond the Baseline plus Project scenario occurs.

Recommendation – An eastbound left-turn lane on SR-116 with a minimum of 50 feet of storage on the west leg of SR-116/Alder Avenue should be provided; the need for this facility is not related to the project, and there is not

a demonstrated safety concern. The planned widening of SR-116 would provide the storage requirement needed for the left-turn lane as well as additional through lanes and could be completed either as part of the project or through the project's TIF contribution; it is a matter of City policy to determine how this improvement is to be funded.

Traffic Signal Warrants

A signal warrant analysis was performed to determine the potential need for a traffic signal at SR-116/Alder Avenue as well as SR-116/West Cotati Avenue.

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

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

For the purposes of this study the Peak Hour Warrant, which determines the need for traffic control based on the highest volume hour of the day, was used as an initial indication of traffic control needs. The use of this signal warrant is common practice for planning studies. Other warrants, which are more generally applicable to existing traffic issues, require collection of traffic volumes for the highest four or eight hours of the day, review of the collision history, and evaluation of the system surrounding the location.

Under the Peak Hour Warrant the need for a traffic control signal may be indicated if an engineering study finds that the criteria in either of the following two categories are met:

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

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

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for one hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

Under Baseline plus Project volumes, a traffic signal would be warranted at SR-116/Alder Avenue in both the a.m. and p.m. peak hours but would not be warranted at SR-116/West Cotati Avenue during either peak hour.

A sensitivity analysis was performed to calculate the portion of remaining future growth beyond the Baseline horizon that would need to occur to satisfy the Peak Hour Signal Warrant at the SR-116/West Cotati Avenue

intersection during the a.m. and p.m. peak hours. Using a straight-line approximation and assuming a five-year horizon for the Baseline scenario and a horizon year of 2040 for the Future scenario, the approximate year when the warrant would become satisfied was also estimated.

The signal warrant would become satisfied for SR-116/West Cotati Avenue with volumes for the a.m. peak hour after approximately 87 percent of future growth beyond the Baseline plus Project scenario occurs and for the p.m. peak hour after approximately 22 percent of future growth beyond the Baseline plus Project scenario occurs. The results of the sensitivity analysis are summarized in Table 7, and copies of the Signal Warrant Spreadsheets are provided in Appendix E.

Table 7 – Peak Hour Signal Warrant Sensitivity Analysis

Study Intersection	AM Peak		PM Peak	
	Growth Needed	Estimated Year Met	Growth Needed	Estimated Year Met
2. SR-116/W Cotati Ave	87%	2038	22%	2030

Notes: Growth Needed = percentage of projected future growth remaining beyond the Baseline horizon needed to satisfy warrant; Estimated Year Met was calculated assuming uniform growth between Baseline and Future scenarios.

Finding – Using Baseline plus Project volumes, the Peak Hour Volume warrant is met at the SR-116/Alder Avenue intersection but not at SR-116/West Cotati Avenue. While a signal is currently warranted at Alder Avenue based on this one criterion, given the lack of a demonstrated safety concern together with the potential to maintain acceptable operation without a traffic signal, one is not recommended. Caltrans would be unlikely to approve signalization of this intersection as the City of Cotati General Plan calls for truncating Alder Avenue north of SR-116 and eliminating the intersection. Caltrans would require analysis of alternative controls, such as a roundabout, before allowing signalization of this intersection or any other along their facilities. It is further noted that signalization of the intersection at West Cotati Avenue could be jeopardized by signalizing Alder Avenue because of the proximity of these two intersections and Caltrans' desire to maintain minimal separation between signalized intersections. Signalization is therefore not warranted at this time.

Emergency Access

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

Adequacy of Site Access

Access to the project site for emergency response vehicles would be facilitated via two driveways on Ford Lane, as well as the Batchelor Street connection to Alder Avenue. This analysis was conducted by a civil engineer under contract to the applicant, and while the site plan has been slightly modified since that time (as shown in Figure 2), the applicant has indicated that adequate lane widths and turning radii have been maintained; a summary of this analysis is provided in Appendix F. According to the site plan, the driveways and drive aisles would be designed to a minimum width of 24 feet. In addition, emergency vehicle access would be provided along the eastern boundary of the property along the future Village Avenue via the connection to SR-116. It is anticipated that all aspects of the site, including driveway and street widths, turning radii, and parking lot circulation, would be constructed in accordance with applicable standards and would be reviewed by the Fire Department; therefore, access would be expected to function acceptably for emergency response vehicles.

Off-Site Impacts

While the project would be expected to result in a minor increase in delay for traffic on SR-116 and Alder Avenue, emergency response vehicles can claim the right-of-way by using their lights and sirens; therefore, the project would be expected to have a nominal effect on emergency response times. The availability of multiple access points is also a benefit for emergency access since a different driveway could be used to gain access to the site should one of the driveways be compromised in an emergency.

Finding – Emergency access and circulation are anticipated to function acceptably, and traffic from the project is expected to have a less-than-significant impact on emergency response times.

Capacity Analysis

Though not relevant to the CEQA review process, in keeping with General Plan policies, the potential for the project to affect traffic operation was evaluated.

Intersection Level of Service Methodologies

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

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the study intersections, which currently have side street stop controls, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersections that are to be controlled by a traffic signal in the future were evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using optimized signal timing.

The ranges of delay associated with the various levels of service are indicated in Table 8.

Table 8 – Intersection Level of Service Criteria

LOS	Two-Way Stop-Controlled	Signalized
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.

Reference: *Highway Capacity Manual,* Transportation Research Board, 2018

Traffic Operation Standards

According to the *Cotati General Plan, Policy C1 1.3*, the minimum acceptable Level of Service (LOS) standard for intersections is LOS D. At unsignalized intersections, levels of service shall be determined for both controlled movements and for the intersection overall. A significant traffic-related impact would occur if implementation of the project would cause an intersection to operate below the General Plan's standard of LOS D, or LOS E for intersections within the boundaries of the Downtown Specific Plan.

At unsignalized intersections, controlled movements operating at LOS E or LOS F are allowable if 1) the intersection is projected to operate at LOS C or better overall, and 2) the projected traffic volume on the controlled movement is 30 vehicles or fewer per hour on approaches with single lanes, or on multi-lane approaches, 30 vehicles or fewer per hour on lanes serving left turns and through movements.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the a.m. and p.m. peak hours. This condition does not include project-generated traffic volumes. Volume data was collected while local schools were in session. Under Existing Conditions, both study intersections operate at LOS A overall and at LOS C or better on the minor street approaches, which is considered acceptable. The existing traffic volumes are shown in Figure 3. A summary of the intersection Level of Service calculations is contained in Table 9, and copies of the calculations are provided in Appendix G.

Table 9 – Existing Peak Hour Intersection Levels of Service

Study Intersection		**AM Peak**		**PM Peak**	
	Approach	**Delay**	**LOS**	**Delay**	**LOS**
1.	SR-116/Alder Ave	0.3	A	0.3	A
	Southbound (Alder Ave) Approach	*17.0*	*C*	*14.0*	*B*
2.	SR-116/W Cotati Ave	0.4	A	0.8	A
	Northbound (W Cotati Ave) Approach	*16.0*	*C*	*15.3*	*C*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Baseline Conditions

Baseline (Existing plus Approved) operating conditions were determined with traffic from approved or pending projects in the study area that could be operational within the next five-year horizon added to the existing volumes. As directed by City staff, the following projects were included in the Baseline Conditions scenario:

- Redwood Row, 157 multifamily units and 10,500 square feet of retail, located on SR-116 on the property to the east of Cotati Village;
- Red's Residential, 126 multifamily units, including 13 affordable units, and 2,740 square feet of shared office space, located at 7515 Alder Avenue ;
- Cannabis Dispensary, 3,000 square feet, located at 8145 SR-116;
- Commercial Retail, 4,800 square feet, located at 8145 SR-116;
- Cotati Hotel, 153 rooms, located at the northwest corner of Old Redwood Highway/Saint Joseph Way;
- Market Hall, 3,596 square feet, located at the northwest corner of Old Redwood Highway/Saint Joseph Way;
- Warehouse, 50,100 square feet, located at 597 Helman Lane; and
- Warehouse, 35,500 square feet, located at 380 Blodgett Street.

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Figure 3 – Existing Traffic Volumes

W-Trans

The trip generation rates and trip distribution patterns assumed in the traffic studies prepared by W-Trans and TJKM for the projects were used for the Baseline scenario; it is noted that some of the rates differ slightly from those in the 11th Edition of *Trip Generation Manual* as some reports were written before this edition was published. The trip generation potential of the approved projects is summarized in Table 10.

Table 10 – Trip Generation for Approved Projects

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
Deduction		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
MF Housing (Low-Rise)	157 du	6.74	1,058	0.40	63	15	48	0.51	80	50	30
Retail	10.5 ksf	54.45	572	2.36	25	15	10	6.59	69	35	34
MF Housing (Low-Rise)	113 du	6.74	762	0.40	45	11	34	0.51	58	36	22
Aff Housing – Inc Limits	13	4.81	63	0.63	5	1	4	0.46	6	4	2
Office	2.7 ksf	10.84	29	1.52	4	4	0	1.44	4	1	3
Marijuana Dispensary	3.0 ksf	252.70	758	10.44	31	18	13	21.83	65	33	32
Shopping Center	4.8 ksf	37.75	181	0.94	5	3	2	3.81	18	9	9
Hotel	153 rm	8.36	1,279	0.47	72	42	30	0.60	92	47	45
Market Hall	3.596 ksf	106.78	384	3.82	14	8	6	9.48	33	17	16
*Internal Trips**		-15%	-58	-15%	-2	-1	-1	-15%	-5	-3	-2
Pass-By Trips		-36%	-138	-36%	-5	-3	-2	-36%	-12	-6	-6
Warehousing	50.1 ksf	1.71	86	0.17	9	7	2	0.18	9	3	6
Warehousing	35.5 ksf	1.71	61	0.17	6	5	1	0.18	6	2	4
Total			**5,037**		**272**	**125**	**147**		**423**	**228**	**195**

Note: du = dwelling units; ksf = 1,000 square feet; rm = rooms; MF = Multifamily; Aff = Affordable; *Internal trip reduction applied to market hall trips as in TJKM traffic study.

Under these conditions, the minor approaches to SR-116/Alder Avenue and SR-116/West Cotati Avenue are expected to operate acceptably at LOS D or better during the a.m. and p.m. peak periods. These results are summarized in Table 11, and Baseline volumes are shown in Figure 4.

Table 11 – Baseline Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak	
Approach	**Delay**	**LOS**	**Delay**	**LOS**
1. SR-116/Alder Ave	1.2	A	1.5	A
Southbound (Alder Ave) Approach	*26.3*	*D*	*24.8*	*C*
2. SR-116/W Cotati Ave	0.4	A	0.8	A
Northbound (W Cotati Ave) Approach	*16.8*	*C*	*16.7*	*C*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*

Future Conditions

Future volumes for the horizon year 2040, as developed for the traffic analysis that was prepared for the *Cotati General Plan March 2015 Update*, were used to project future operating conditions at the study intersections. Under

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Figure 4 – Baseline Traffic Volumes

W-Trans

Future Conditions, the General Plan indicates that the intersection of SR-116/Alder Avenue will be eliminated and replaced with the SR-116/New North-South Street intersection. This new intersection would include four legs with dedicated turn lanes on each leg, as described in the *Traffic Impact Fee Study*, W-Trans, 2015, as well as separate right-turn lanes on the new street approaches. The planned future widening of SR-116 would provide two through lanes in each direction between Redwood Drive and Madrone Avenue. The SR-116/West Cotati Avenue intersection would also be realigned and signalized with protected left turns on SR-116 and split phasing on West Cotati Avenue. These future improvements were assumed to have been constructed and are included as part of the Future Conditions analysis.

Under these conditions, the study intersections are expected to operate acceptably at LOS B or C. These results are summarized in Table 12, and future volumes are shown in Figure 5.

Table 12 – Future Peak Hour Intersection Levels of Service

Study Intersection	AM Peak		PM Peak	
	Delay	LOS	Delay	LOS
2. SR-116/W Cotati Ave (Signalized)	21.7	C	28.9	C
3. SR-116/New North-South Street (Signalized)	18.6	B	30.6	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service.

Project Conditions

No transportation network changes were assumed for Project Conditions. The project includes provision of emergency vehicle access along the eastern property boundary at the location of the future Village Avenue.

Existing plus Project Conditions

Upon the addition of project-related traffic to the existing volumes, the study intersections and all minor approaches are expected to continue operating acceptably. These results are summarized in Table 13. Project and Existing plus Project traffic volumes on the existing network are shown in Figure 6.

Table 13 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Existing Conditions				Existing plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR-116/Alder Ave	1.2	A	1.5	A	1.3	A	1.8	A
Southbound (Alder Ave) Approach	*26.3*	*D*	*24.8*	*C*	*23.3*	*C*	*21.8*	*C*
2. SR-116/W Cotati Ave	0.4	A	0.8	A	0.4	A	0.8	A
Northbound (W Cotati Ave) Approach	*16.8*	*C*	*16.7*	*C*	*16.4*	*C*	*15.9*	*C*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*.

Finding – The study intersections are expected to continue operating acceptably upon the addition of project-generated traffic to existing volumes.

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Figure 5 – Future Traffic Volumes and Lane Configurations

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Figure 6 – Project and Existing plus Project Traffic Volumes

Baseline plus Project Conditions

With project-related traffic added to Baseline volumes, the minor approach to SR-116 at West Cotati Avenue is expected to operate acceptably at LOS C or better; the Alder Avenue approach is projected to operate unacceptably at LOS E. These results are summarized in Table 14 and Baseline plus Project traffic volumes are shown in Figure 7.

Table 14 – Baseline and Baseline plus Project Peak Hour Intersection Levels of Service

Study Intersection		Baseline Conditions				Baseline plus Project			
	Approach	**AM Peak**		**PM Peak**		**AM Peak**		**PM Peak**	
		Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1.	SR-116/Alder Ave	1.2	A	1.5	A	2.7	A	4.7	A
	Southbound (Alder Ave) Approach	*26.3*	*D*	*24.8*	*C*	*36.0*	*E*	*43.8*	*E*
	With LT and RT Lanes	*n/a*		*n/a*		*28.5*	*D*	*30.8*	*D*
2.	SR-116/W Cotati Ave	0.4	A	0.8	A	0.4	A	0.8	A
	Northbound (W Cotati Ave) Approach	*16.8*	*C*	*16.7*	*C*	*17.2*	*C*	*17.3*	*C*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics,* shaded cells indicated conditions with recommended improvements

Finding – The study intersection at West Cotati Avenue is expected to continue operating acceptably upon the addition of project-generated traffic to Baseline volumes. Operation on the stop-controlled Alder Avenue approach to SR-116 would deteriorate to LOS E upon adding project-generated trips, but acceptable LOS D operation could be achieved by restriping the approach to include separate left-turn and right-turn lanes.

Recommendation – It is recommended that the southbound Alder Avenue approach to SR-116 be restriped to include separate left-turn and right-turn lanes. This measure could be deferred to the construction of the Red's Residential project as its traffic triggers this adverse effect.

As previously noted, the Peak Hour traffic signal warrant is met under Baseline plus Project volumes at the SR-116/Alder Avenue intersection. A traffic signal is not recommended at this location since operations would be acceptable with the recommended striping modifications. In addition, Caltrans would be unlikely to approve a signal at this location as the City's General Plan calls for truncating Alder Avenue north of SR-116 and eliminating the intersection.

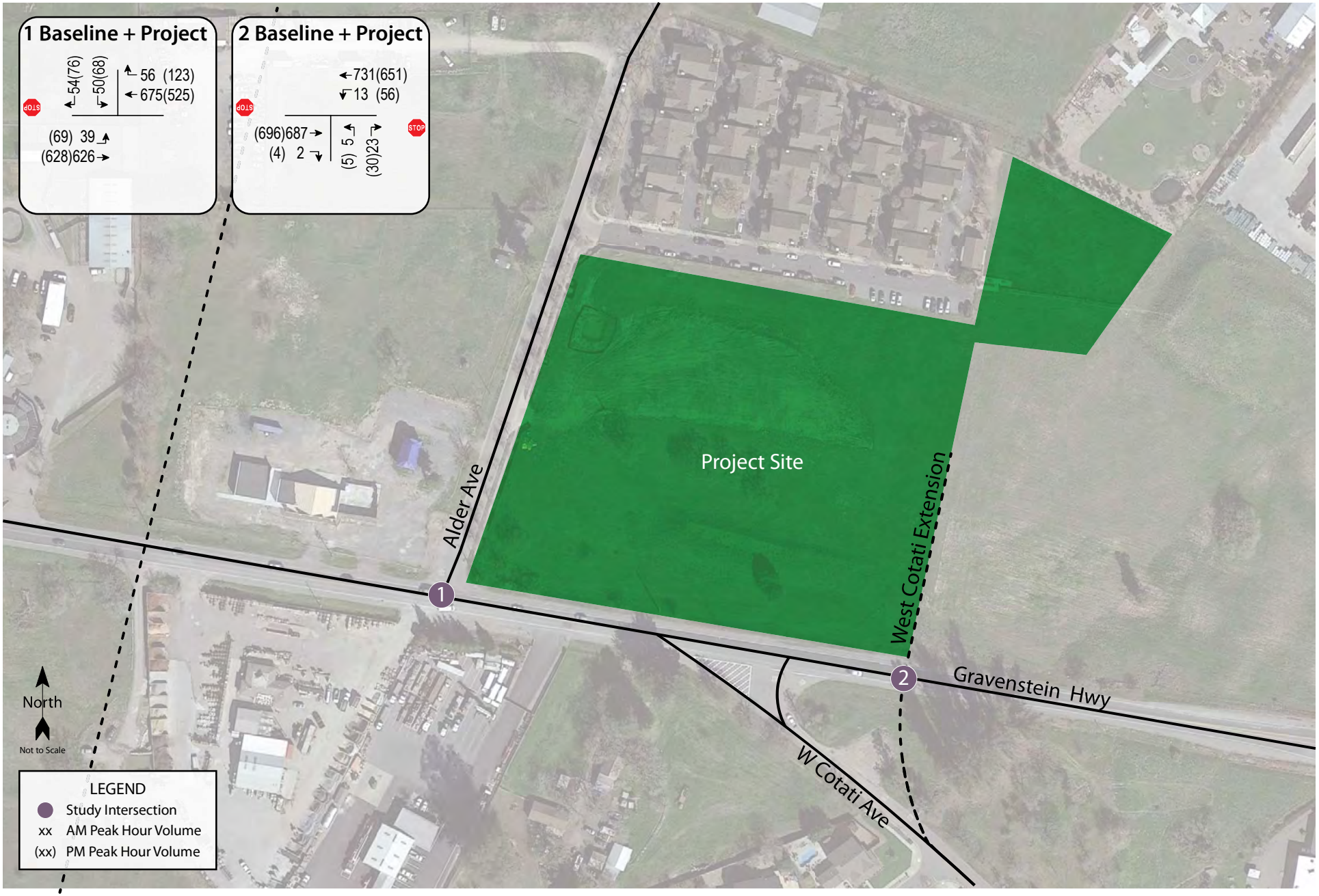

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Figure 7 – Baseline plus Project Traffic Volumes

Future plus Project Conditions

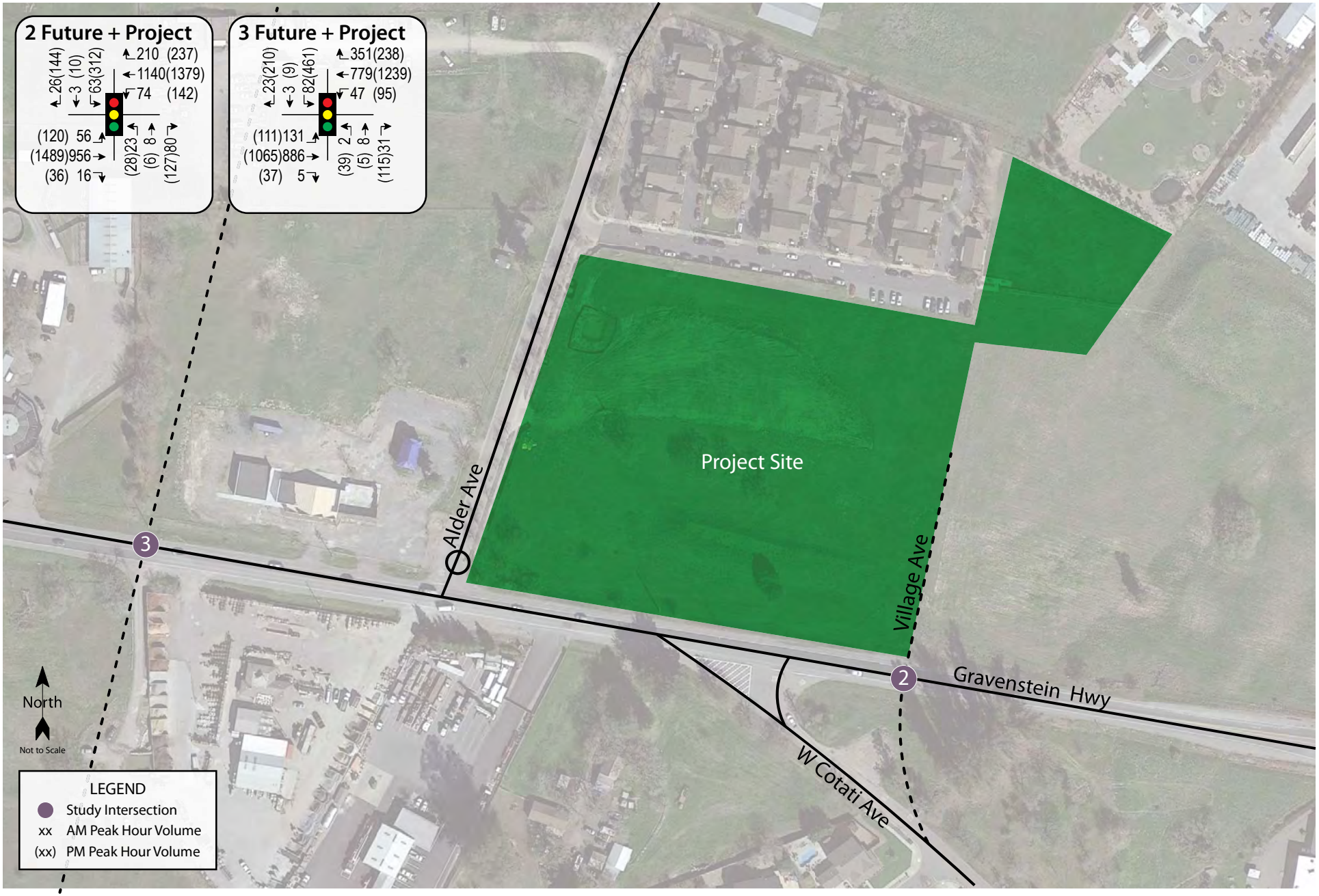
Upon the addition of project-generated traffic to the anticipated future volumes and with the planned future signals at both locations, the study intersections are expected to operate acceptably at LOS D or better. The Future plus Project operating conditions are summarized in Table 15. Project traffic volumes on the future network are shown in Figure 8.

Table 15 – Future and Future plus Project Peak Hour Intersection Levels of Service

Study Intersection	Future Conditions				Future plus Project			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
2. SR-116/W Cotati Ave	21.7	C	28.9	C	27.5	C	42.0	D
3. SR-116/New North-South St	18.6	B	30.6	C	18.5	B	30.8	C

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service

Finding – The study intersections are expected to continue operating acceptably with the addition of project-generated traffic to future volumes assuming planned improvements.



cot091.ai 5/23

Transportation Impact Study for the Cotati Village Project

Figure 8 – Future plus Project Traffic Volumes

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated parking demand. The project site as proposed would provide a total of 273 standard parking spaces that would be shared by the residential and retail users, and a small number of spaces would be shared with the neighboring property. Since a minimum of 251 spaces would be available for the exclusive use of the project, this was the assumed number of spaces for the purpose of analyzing the adequacy of the proposed parking supply.

Adequacy of the proposed parking supply was assessed based on the City's parking supply requirements as indicated in the Cotati Municipal Code, Chapter 17.36.050, Number of Parking Spaces Required, Chapter 17.36.080(E), Reduction of parking requirements, and the state requirements for density bonus projects, California Government Code Sections 65915 – 65918. Based on City requirements, 246 spaces would be required to serve the residential uses, while 118 spaces would be required for the proposed retail uses, a total of 364 spaces. The state density bonus law reduces the requirements for the residential uses to 212 spaces, while the requirements for the office and retail uses would remain unchanged, reducing the requirement to 330 spaces. The City Code allows for a further 30 percent reduction as a vertical mixed-use project, for a total requirement of 231 spaces. The proposed parking supply, City of Cotati requirements, and expected demand are shown in Table 16.

Table 16 – Summary of Parking Requirements and Estimated Demand

Land Use	Units	Rate	Parking Spaces
City Required Parking			
Multifamily Housing	108 1-bdr units 69 2-bdr units	1 space/du 2 spaces/du	108 138
Shopping Center	14.7 ksf	1 space/250 sf	59
Office	14.7 ksf	1 space/250 sf	59
City Required Parking Total			*364**
State Density Bonus Requirements			
Multifamily Housing	108 1-bdr units 69 2-bdr units	1 space/du 1.5 spaces/du	108 104
Shopping Center (City Requirements)	14.7 ksf	1 space/250 sf	59
Office (City Requirements)	14.7 ksf	1 space/250 sf	59
State Density Bonus Requirements			*330*
City Code 30% Vertical Mixed-Use Reduction			*-99*
State Density Bonus Reqs + Vertical Mixed-Use Red			*231*
Estimated Project Parking Supply			**251**

Notes: ksf = 1,000 square feet; du = dwelling unit; bdr = bedroom; * guest parking not required for density bonus projects; ** it was conservatively assumed that use of 22 of the 273 spaces indicated in the site plan would be granted to the Cotati Cottages for exclusive use

The site plan shows that out of the proposed 273 spaces, there would be 19 accessible stalls, with approximately half of all accessible stalls van accessible. The City of Cotati Municipal Code, Chapter 17.36.060; Disabled Parking Requirements, requires that parking spaces for the disabled be provided in compliance with the Uniform Building Code, the Federal Accessibility Guidelines, and/or the California Code of Regulations, Title 24. Based on requirements stipulated by the Federal Accessibility Guidelines, the required number of accessible stalls is seven accessible stalls and two van spaces. The proposed accessible stall supply is sufficient to meet the supply required under the ADA.

Finding – The proposed parking supply for the residential and retail portions of the project satisfies the requirements for density bonus projects including the City's vertical mixed-use reduction.

Conclusions and Recommendations

Conclusions

CEQA Issues

- The project has the potential to result in an average of 2,251 new daily trips on local streets, with 110 new trips during the weekday a.m. peak hour and 176 new trips during the weekday p.m. peak hour.

- Calculated collision rates for the existing study intersections were all determined to be lower or nominally above the statewide average rates, indicating that there are no readily apparent safety issues for motorists in the vicinity of the project site. There were no collisions reported involving a pedestrian or bicyclist.

- Upon constructing a Class I multi-use path along the project frontage with SR-116 and along the new project streets, as well as interim off-site improvements if sidewalks have not yet been provided by other development projects and assuming the City can secure the right-of-way, the project site would be connected to the existing pedestrian network with a less-than-significant impact for pedestrians. Existing bicycle facilities and transit facilities are adequate.

- The impact of project-related VMT would be less than significant.

- Sight lines on Alder Avenue and SR-116 are adequate to accommodate all turns into and out of the proposed driveways.

- A left-turn lane is warranted on SR-116 at the intersection with Alder Avenue based on typical existing traffic volumes without the inclusion of project trips. However, as the intersection had a below-average collision rate, it is operating within normal safety parameters without a left-turn lane.

- Emergency access and circulation are anticipated to function acceptably, and traffic from the proposed project is expected to have a less-than-significant impact on emergency response times.

Policy Issues

- All existing and future study intersections are expected to operate at acceptable Levels of Service under Existing, near-term Baseline, and Future buildout volumes without and with the addition of trips from the proposed project assuming planned improvements, except that SR-116/Alder Avenue would operate unacceptably at LOS E under Baseline plus Project volumes during both peak periods.

- The proposed parking supply would meet the City's requirements for density bonus projects including the City's vertical mixed-use reduction.

Recommendations

CEQA Issues

- Adequate sight lines should be maintained during the design and construction of project access points, and the placement of any signs, structures, or tall landscaping on Alder Avenue and SR-116 that would impede sight lines should be avoided.

- If the current Alder Avenue access from SR-116 is retained, an eastbound left-turn lane should be constructed on SR-116 on the west leg of SR-116/Alder Avenue. Left-turn lanes should also be constructed at the SR-116/West Cotati Avenue intersection as part of the relocation of West Cotati Avenue to the east. The addition of left-turn lanes is recommended to improve traffic operations to acceptable levels; there is not an identified safety concern. The planned widening of SR-116 as identified in the TIF would provide the left-turn lane as well as additional through lanes; this could be completed either as part of the project or through the project's TIF contribution; it is a matter of City policy to determine how this improvement is to be funded.

Policy Issues

- The striping on Alder Avenue should be modified to provide separate left-turn and right-turn lanes at SR-116. This could be deferred to construction of the Red's Residential project as without the trips from this Baseline project the improvement would not be needed.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Senior Transportation Planner	Barry Bergman, AICP
Senior Traffic Engineer	Kenny Jeong, PE
Assistant Engineer	Valerie Haines
Graphics	Cameron Wong
Editing/Formatting	Alex Scrobonia, Hannah Yung-Boxdell, Jessica Bender
Quality Control	Kevin Carstens, PE

References

"Estimating Maximum Queue Length at Unsignalized Intersections," *ITE Journal*, John T. Gard, November 2001

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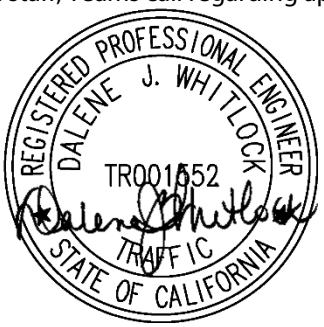
Communications

J.P. Harries and Noah Housh, City of Cotati staff, Teams call regarding application of City VMT policy, March 10, 2022

COT091-4



Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

Cotati Village

Intersection # 1: SR 116 & Alder Avenue
Date of Count: Wednesday, February 23, 2022

Number of Collisions: 2
Number of Injuries: 1
Number of Fatalities: 0
Average Daily Traffic (ADT): 16700
Start Date: August 1, 2016
End Date: July 31, 2021
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Suburban

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

$$\text{Collision Rate} = \frac{2 \times 1{,}000{,}000}{16{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.07 c/mve**	**0.0%**	**50.0%**
Statewide Average*	**0.17 c/mve**	**1.2%**	**39.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Intersection # 2: SR 116 & West Cotati Avenue
Date of Count: Wednesday, February 23, 2022

Number of Collisions: 3
Number of Injuries: 3
Number of Fatalities: 0
Average Daily Traffic (ADT): 16900
Start Date: August 1, 2016
End Date: July 31, 2021
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Suburban

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

$$\text{Collision Rate} = \frac{3 \times 1{,}000{,}000}{16{,}900 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.10 c/mve**	**0.0%**	**100.0%**
Statewide Average*	**0.17 c/mve**	**1.2%**	**39.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

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Appendix B

Internal Capture Trips Calculations

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NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Cotati Village	**Organization:**	W-Trans
Project Location:	SR 116/Alder Avenue	**Performed By:**	SG
Scenario Description:		**Date:**	4/12/2022
Analysis Year:	2022	**Checked By:**	DW
Analysis Period:	**AM Street Peak Hour**	**Date:**	4/12/2022

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	822	177	du	71	42	29
Restaurant				0		
Cinema/Entertainment				0		
Residential	228	30	ksf	71	17	54
Hotel				0		
All Other Land Uses[2]				0		
				142	59	83

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	142	59	83
Internal Capture Percentage	1%	2%	1%
External Vehicle-Trips[5]	140	58	82
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	2%	0%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	0%	2%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Cotati Village	**Organization:**	W-Trans
Project Location:	SR 116/Alder Avenue	**Performed By:**	SG
Scenario Description:		**Date:**	4/12/2022
Analysis Year:	2022	**Checked By:**	DW
Analysis Period:	**PM Street Peak Hour**	**Date:**	4/12/2022

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	822	177	du	198	99	99
Restaurant				0		
Cinema/Entertainment				0		
Residential	228	30	ksf	90	57	33
Hotel				0		
All Other Land Uses[2]				0		
				288	156	132

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					1000	
Restaurant						
Cinema/Entertainment						
Residential		1000				
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	24	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	8	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	288	156	132
Internal Capture Percentage	22%	21%	24%
External Vehicle-Trips[5]	224	124	100
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	8%	24%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	42%	24%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Appendix C

Vehicle Miles Traveled (VMT) Inputs

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Cotati Village VMT Assessment (Residential Component)

W-Trans 5/24/2022

OPR Residential VMT Threshold

18.29	VMT/Capita Citywide Average - City of Cotati
15.55	OPR Threshold = 15% below Citywide Average

Base Unadjusted Project VMT

20.23	Base VMT/Capita from SCTA Model - Project in TAZ 425				
177	Single Family Units	2.34	Occupancy/Unit	414	Residents
	ADU Units	1.5	Occupancy/Unit	0	Residents
8379	Base Unadjusted Project VMT (mi)			414	Residents ("capita")

VMT Adjustments

20.23	Base VMT/Capita from SCTA Model - Project in TAZ 425
15.55	OPR Threshold = 15% below Citywide Average
-23.2%	Project VMT Reduction Required to meet OPR Threshold

Density Adjustment

177	Project Units
7.8	Project Acres
22.6	Project Density
-30.0%	VMT Reduction
-6.07	Adjustment to Base Project VMT/Capita

Source: CAPCOA 2021 *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity,* CAPCOA, August 2021

Formula: ((Number of project housing units per acre - 9.1) / 9.1) x -0.22
-0.22 is elasticity factor
cap is 30%; effective range is between 9.1 and 21.5 du/ac

VMT Projections After Adjustments and Mitigation

20.23	Base VMT/Capita from SCTA Model	8379	Unadjusted Base Residential VMT (mi)
-6.07	Adjustment to Base Project VMT/Capita	-2514	VMT Reduction with Adjustments and Mitigation
14.16	Project VMT/Capita with Adjustments & Mitigation	5865	Project VMT (mi) with Adjustments and Mitigation
15.55	OPR Significance Threshold		
YES	Is threshold met with adjustments and mitigation?		

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Appendix D

Left-Turn Lane Warrants and Queue Length Calculations

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Warrant Analysis Conducted in 2017

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Gravenstein Highway/Alder Avenue
Study Scenario: Existing Conditions (PM Peak)

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Gravenstein Highway

Westbound Volumes (veh/hr)

Through Volume = 621

Right Turn Volume = 11

Westbound Speed Limit: 40 mph

Westbound Configuration: 2 Lanes - Undivided

Alder Avenue

Gravenstein Highway

Eastbound Volumes (veh/hr)

569 = Through Volume

29 = Left Turn Volume

Eastbound Speed Limit: 45 mph

Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	967.6
Advancing Volume	Va =	632
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

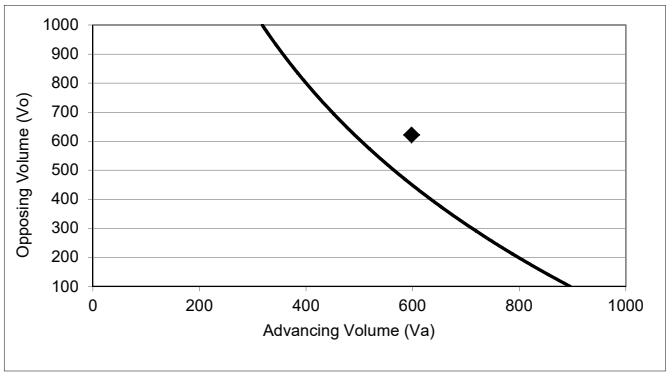
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	632
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	4.8 %
Advancing Volume Threshold	AV	491 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 45 mph

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

Left Turn Lane Warranted: **YES**

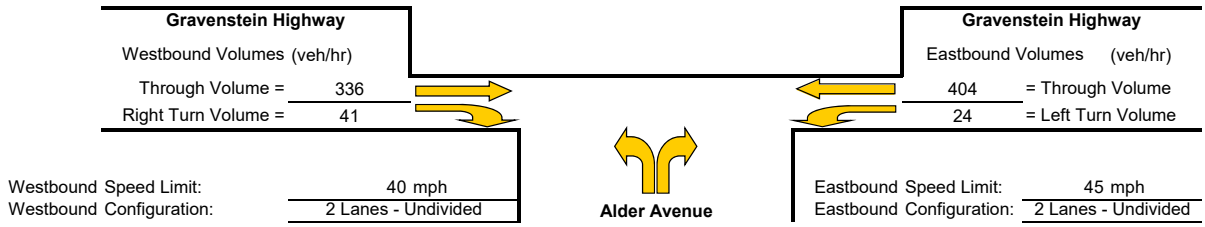
Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink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

Warrant Analysis Conducted in 2017

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Gravenstein Highway/Alder Avenue
Study Scenario: Existing plus the Villages Project (AM Peak)

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



Westbound Speed Limit: 40 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 45 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	742.5
Advancing Volume	Va =	377
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

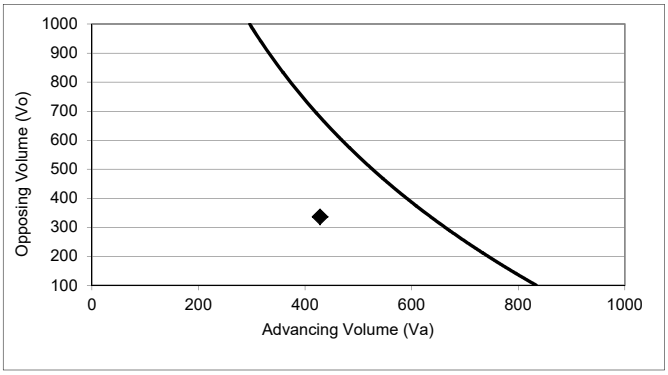
Advancing Volume Threshold	AV =	490
Advancing Volume	Va =	377
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	5.6 %
Advancing Volume Threshold	AV	636 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

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

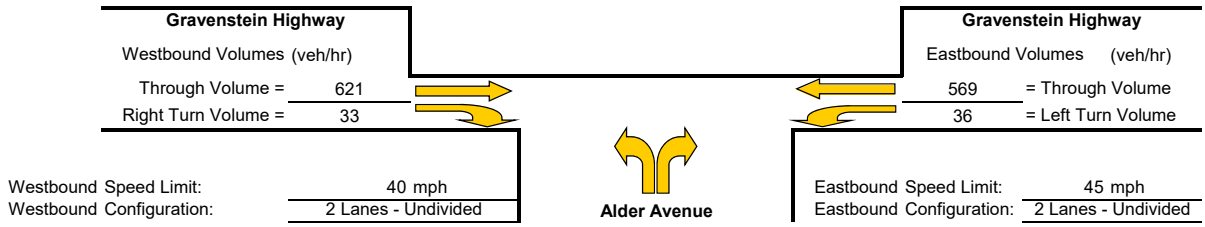
Warrant Analysis Conducted in 2017

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Gravenstein Highway/Alder Avenue
Study Scenario: Existing plus the Villages Project (PM Peak)

Direction of Analysis Street: East/West

Cross Street Intersects: From the North



Westbound Speed Limit: 40 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 45 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	802.6
Advancing Volume	Va =	654
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

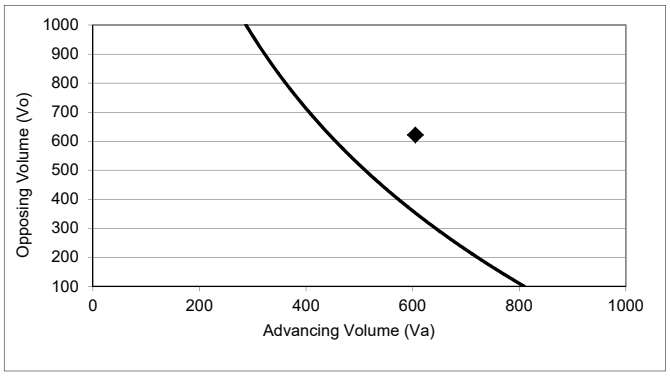
Advancing Volume Threshold	AV =	570
Advancing Volume	Va =	654
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	6.0 %
Advancing Volume Threshold	AV	444 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 45 mph

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

Left Turn Lane Warranted: **YES**

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

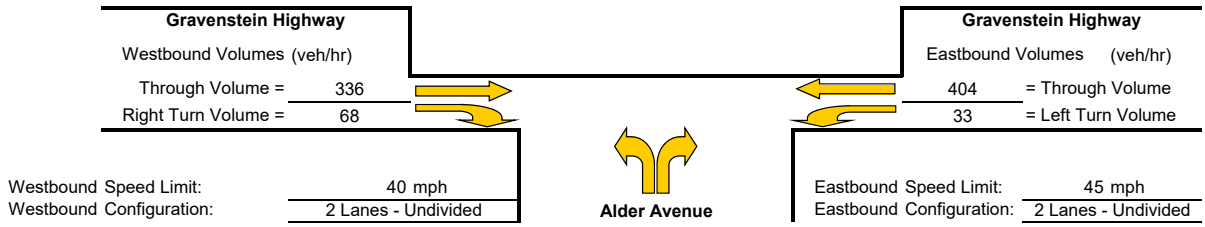
Warrant Analysis Conducted in 2017

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Gravenstein Highway/Alder Avenue
Study Scenario: Existing plus The Villages, ALF and Blodgett (AM Peak)

Direction of Analysis Street: East/West

Cross Street Intersects: From the North



Westbound Speed Limit: 40 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 45 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	540
Advancing Volume	Va =	404
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

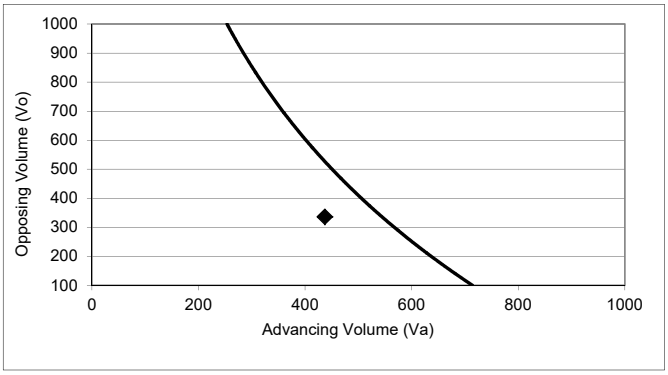
Advancing Volume Threshold	AV =	220
Advancing Volume	Va =	404
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	7.6 %
Advancing Volume Threshold	AV	544 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 45 mph

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

Left Turn Lane Warranted: **NO**

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

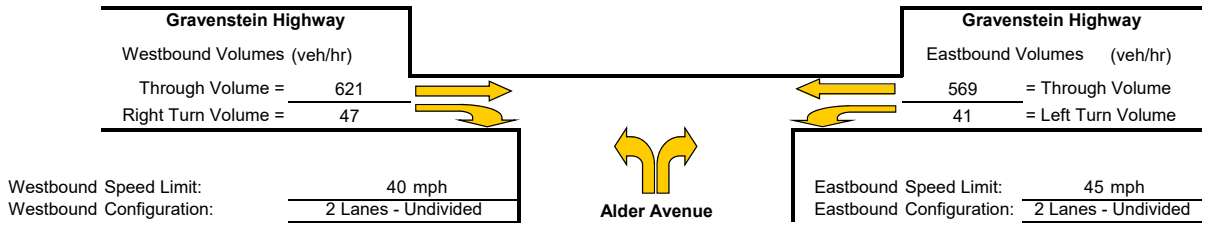
Warrant Analysis Conducted in 2017

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Gravenstein Highway/Alder Avenue
Study Scenario: Existing plus The Villages, ALF and Blodgett (PM Peak)

Direction of Analysis Street: East/West

Cross Street Intersects: From the North



Westbound Speed Limit: 40 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 45 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	697.5
Advancing Volume	Va =	668
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

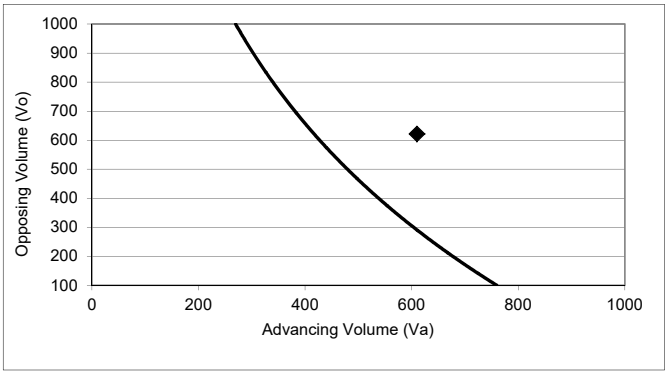
Advancing Volume Threshold	AV =	430
Advancing Volume	Va =	668
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	6.7 %
Advancing Volume Threshold	AV	417 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 45 mph

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

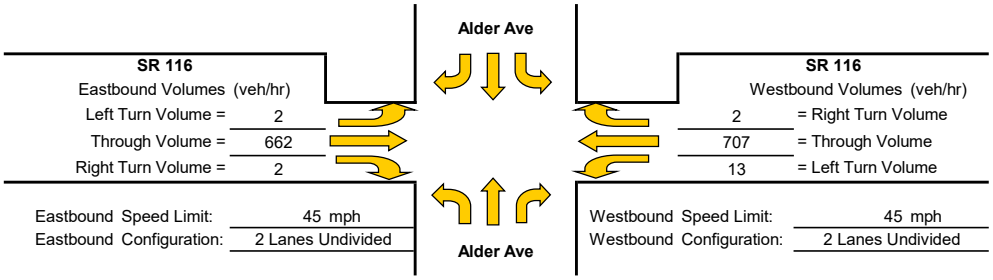
Left Turn Lane Warranted: **YES**

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

Turn Lane Warrant Analysis - 4 Legged Intersections

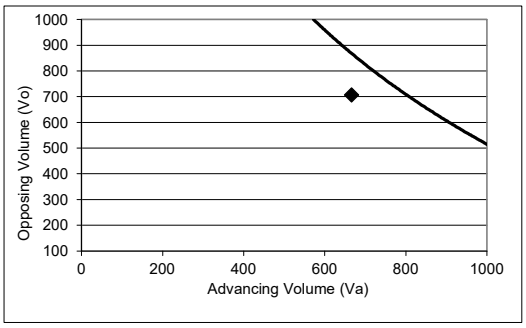
Study Intersection: SR 116 / W Cotati Ave
Study Scenario: B+P AM

Direction of Analysis Street: East/West



Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.3 %
Advancing Volume Threshold AV 801 veh/hr
If AV<Va then warrant is met

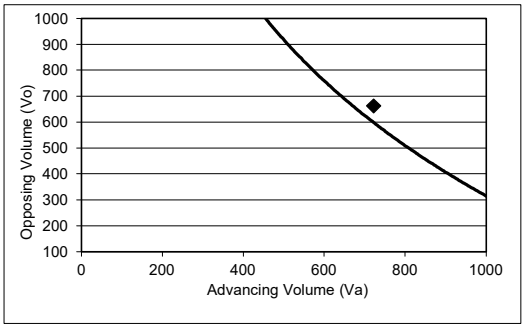


◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 1.8 %
Advancing Volume Threshold AV 671 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = -
   Advancing Volume Va = 666
   If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = -
   Advancing Volume Va = 722
   If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = 1267
   Advancing Volume Va = 666
   If AV<Va then warrant is met No

Right Turn Taper Warranted: **NO**

Westbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = -
   Advancing Volume Va = 722
   If AV<Va then warrant is met -

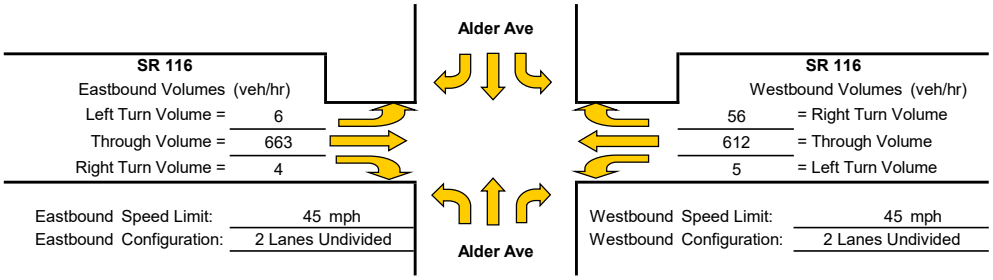
Right Turn Taper Warranted: **NO**

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

Turn Lane Warrant Analysis - 4 Legged Intersections

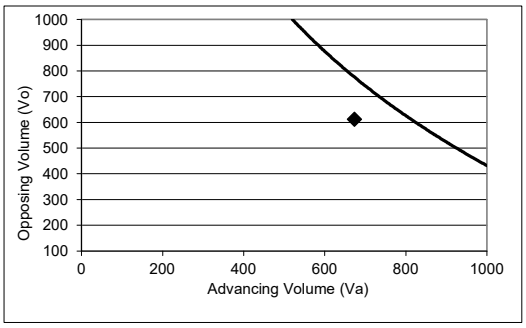
Study Intersection: SR 116 / W Cotati Ave
Study Scenario: B+P PM

Direction of Analysis Street: East/West



Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.9 %
Advancing Volume Threshold AV 813 veh/hr
If AV<Va then warrant is met

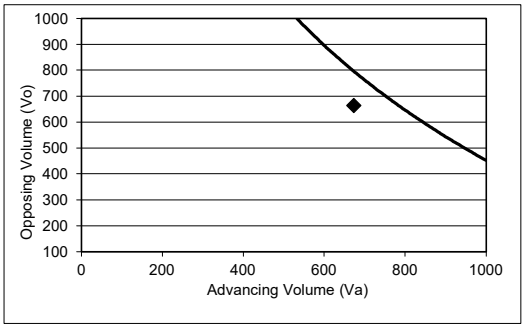


◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.7 %
Advancing Volume Threshold AV 784 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = -
   Advancing Volume Va = 673
   If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = 480
   Advancing Volume Va = 673
   If AV<Va then warrant is met Yes

Right Turn Lane Warranted: **YES**

Eastbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = 1200
   Advancing Volume Va = 673
   If AV<Va then warrant is met No

Right Turn Taper Warranted: **NO**

Westbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

N/A

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = -
   Advancing Volume Va = -
   If AV<Va then warrant is met -

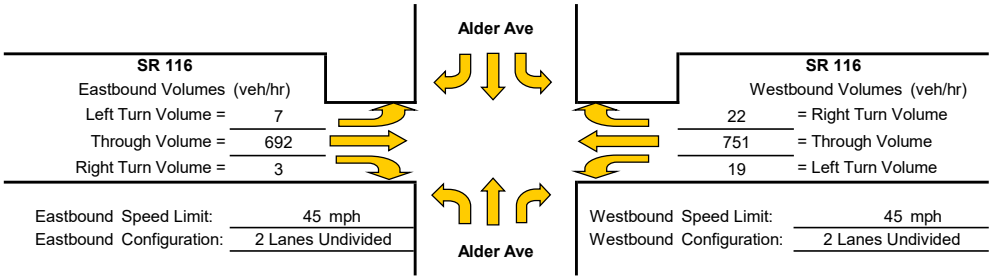
Right Turn Taper Warranted: **N/A**

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

Turn Lane Warrant Analysis - 4 Legged Intersections

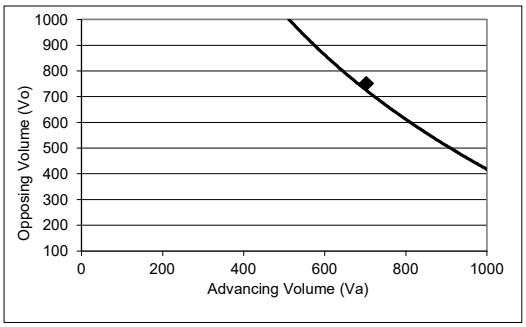
Study Intersection: SR 116 / W Cotati Ave
Study Scenario: AM Threshold Estimate

Direction of Analysis Street: East/West



Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 1.0 %
Advancing Volume Threshold AV 681 veh/hr
If AV<Va then warrant is met

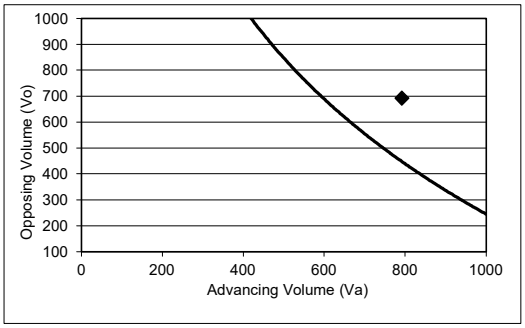


◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 2.4 %
Advancing Volume Threshold AV 598 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = -
   Advancing Volume Va = 702
   If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = -
   Advancing Volume Va = 792
   If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = 1233
   Advancing Volume Va = 702
   If AV<Va then warrant is met No

Right Turn Taper Warranted: **NO**

Westbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = 480
   Advancing Volume Va = 792
   If AV<Va then warrant is met Yes

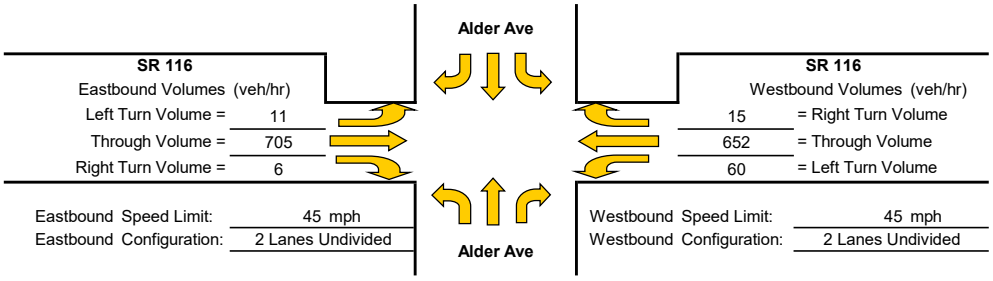
Right Turn Taper Warranted: **YES**

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

Turn Lane Warrant Analysis - 4 Legged Intersections

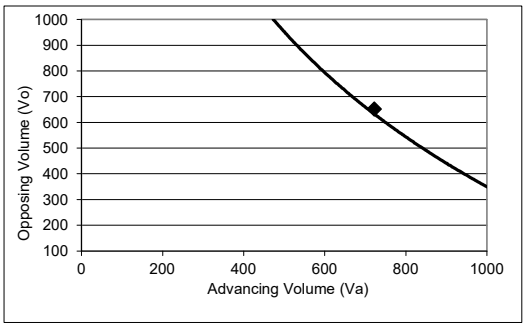
Study Intersection: SR 116 / W Cotati Ave
Study Scenario: PM Threshold Estimate

Direction of Analysis Street: East/West



Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt 1.5 %
Advancing Volume Threshold AV 706 veh/hr
If AV<Va then warrant is met

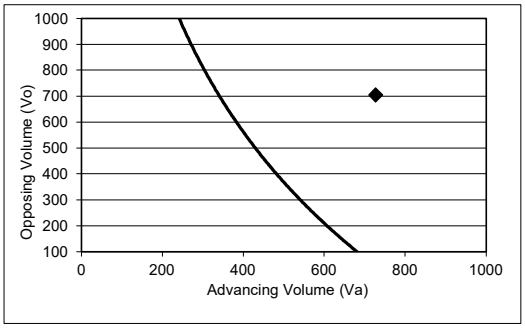


◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 8.3 %
Advancing Volume Threshold AV 339 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 45 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = -
   Advancing Volume Va = 722
   If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = -
   Advancing Volume Va = 727
   If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = 1133
   Advancing Volume Va = 722
   If AV<Va then warrant is met No

Right Turn Taper Warranted: **NO**

Westbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = -
   Advancing Volume Va = 727
   If AV<Va then warrant is met -

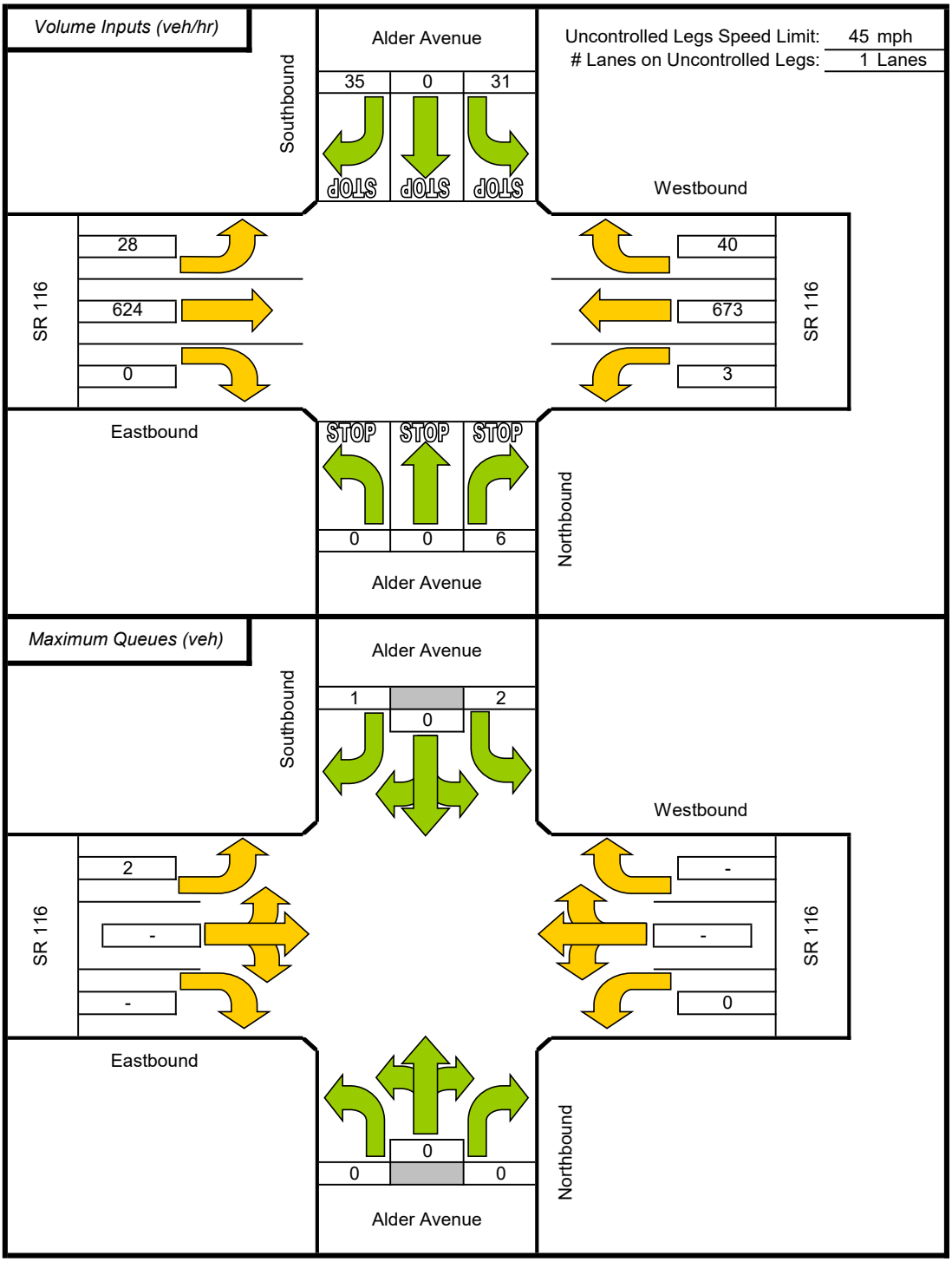
Right Turn Taper Warranted: **NO**

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

Maximum Queue Length
Two-Way Stop-Controlled Intersections

Through Street: SR 116
Side Street: Alder Avenue

Scenario: B+P AM Peak Hour
Stop Controlled Legs: North/South

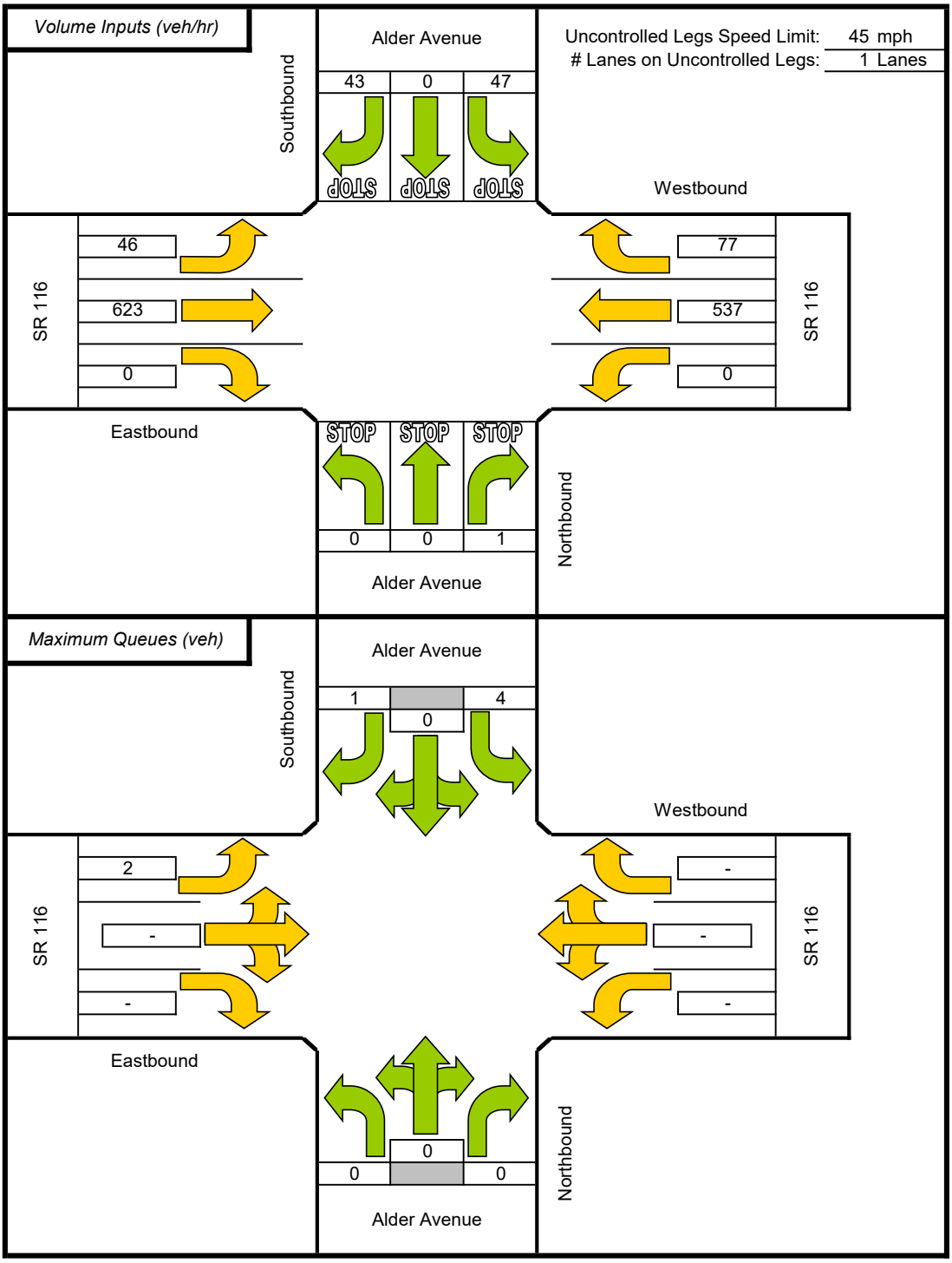


Source: John T. Gard, ITE Journal, November 2001, "Estimating Maximum Queue Length at Unsignalized Intersections"

Maximum Queue Length
Two-Way Stop-Controlled Intersections

Through Street: SR 116
Side Street: Alder Avenue

Scenario: B+P PM Peak Hour
Stop Controlled Legs: North/South



Source: John T. Gard, ITE Journal, November 2001, "Estimating Maximum Queue Length at Unsignalized Intersections"

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Appendix E

Signal Warrant Spreadsheets

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Warrant 3: Peak-Hour Volumes and Delay

SR 116 & Alder Ave
City of Cotati

Project Name: Cotati Village

Intersection: 1

	Major Street	Minor Street
Street Name	SR 116	Alder Ave
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	45	35

Population less than 10,000? No
Date of Count: Wednesday, February 23, 2022
Scenario: B+P AM

Warrant 3 Met?: Met when either Condition A or B is met — **Yes**

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

Condition A1 — Not Met

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

Minor Approach Delay: 1.04 vehicle-hours

Condition A2 — Not Met

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

Minor Approach Volume: 104 vph

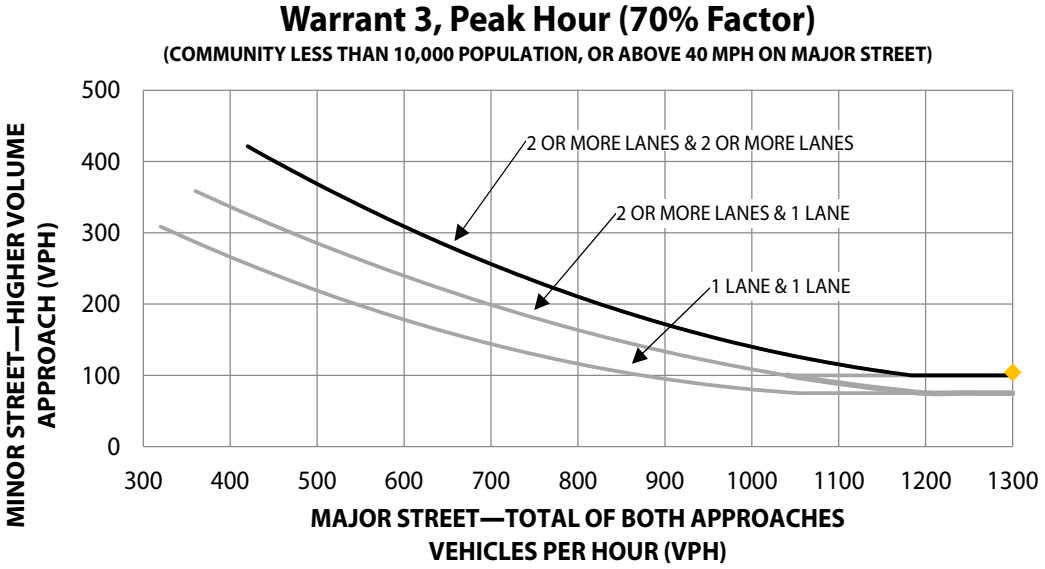
Condition A3 — Met

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

Total Entering Volume: 1500 vph

Condition B — Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 116 & W Cotati Ave
City of Cotati

Project Name: Cotati Village

Intersection: 2

	Major Street	Minor Street
Street Name	SR 116	W Cotati Ave
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	45	35

Population less than 10,000? No
Date of Count: Wednesday, February 23, 2022
Scenario: B+P AM

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

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

Condition A1 — Not Met

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

Minor Approach Delay: 0.13 vehicle-hours

Condition A2 — Not Met

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

Minor Approach Volume: 28 vph

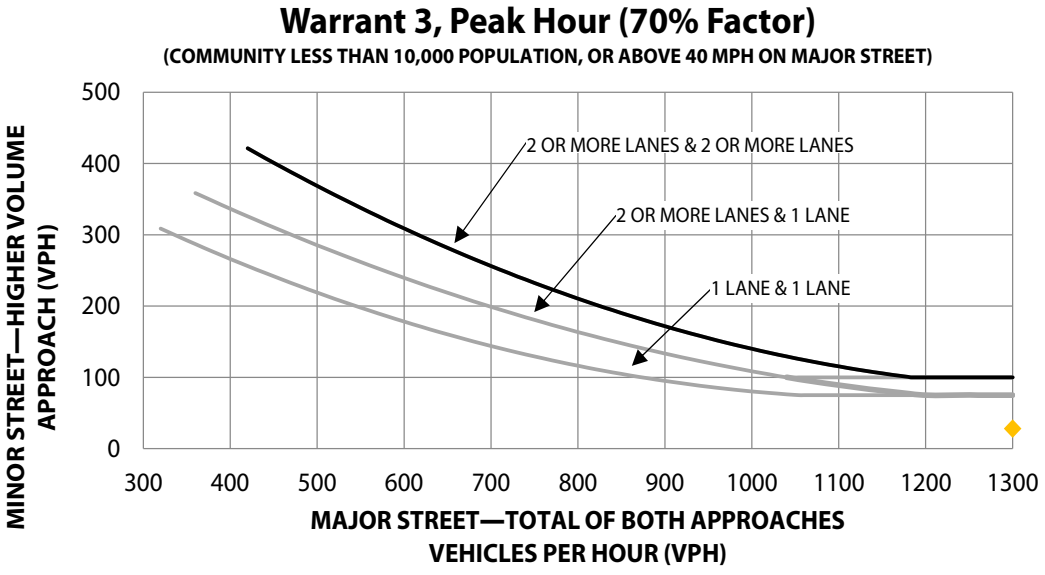
Condition A3 — Met

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

Total Entering Volume: 1461 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 116 & Alder Ave
City of Cotati

Project Name: Cotati Village

Intersection: 1

	Major Street	Minor Street
Street Name	SR 116	Alder Ave
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	45	35

Population less than 10,000? No
Date of Count: Wednesday, February 23, 2022
Scenario: B+P PM

Warrant 3 Met?: Met when either Condition A or B is met — **Yes**

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

Condition A1 — Not Met

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

Minor Approach Delay: 1.75 vehicle-hours

Condition A2 — Not Met

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

Minor Approach Volume: 144 vph

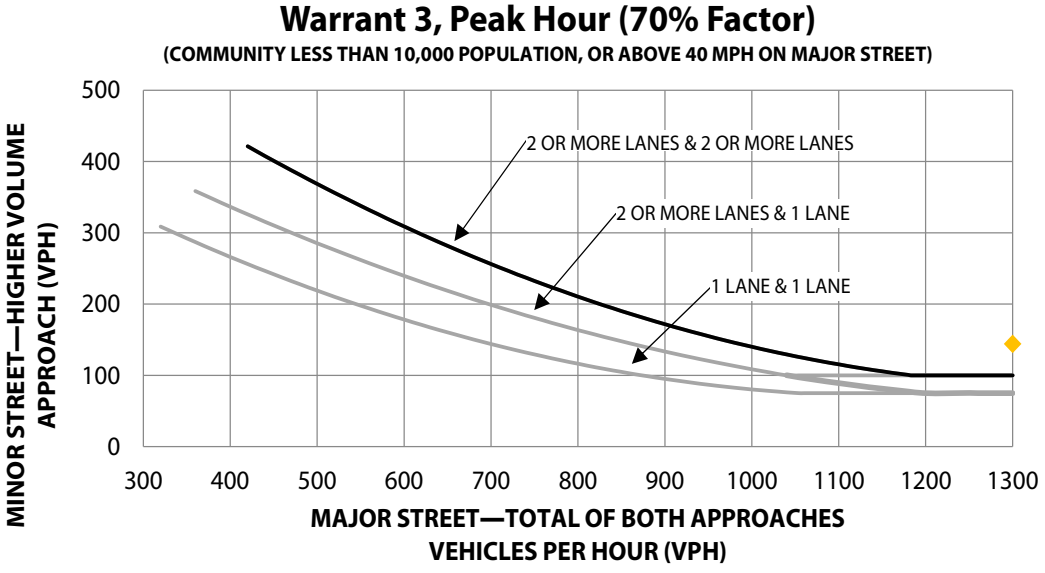
Condition A3 — Met

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

Total Entering Volume: 1489 vph

Condition B — Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 116 & W Cotati Ave
City of Cotati

Project Name: Cotati Village

Intersection: 2

	Major Street	Minor Street
Street Name	SR 116	W Cotati Ave
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	45	35

Population less than 10,000? No
Date of Count: Wednesday, February 23, 2022
Scenario: B+P PM

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

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

Condition A1 — Not Met

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

Minor Approach Delay: 0.17 vehicle-hours

Condition A2 — Not Met

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

Minor Approach Volume: 35 vph

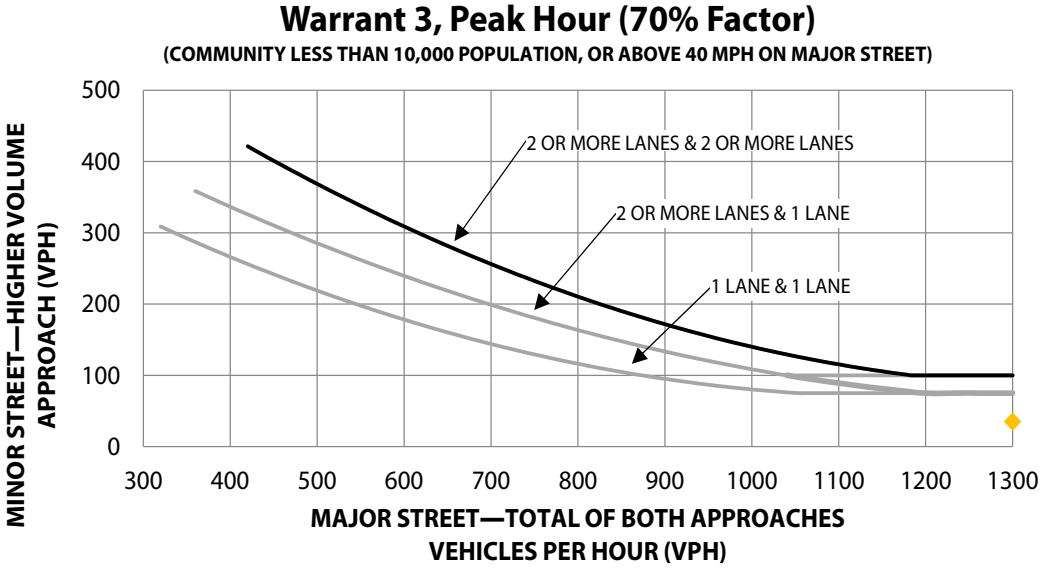
Condition A3 — Met

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

Total Entering Volume: 1442 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 116 & W Cotati Ave
City of Cotati

Project Name: Cotati Village

Intersection: 2

	Major Street	Minor Street
Street Name	SR 116	W Cotati Ave
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	45	35

Population less than 10,000? No
Date of Count: Wednesday, February 23, 2022
Scenario: AM Threshold Estimate

Warrant 3 Met?: Met when either Condition A or B is met — **Yes**

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

Condition A1 — Not Met

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

Minor Approach Delay: 0.51 vehicle-hours

Condition A2 — Not Met

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

Minor Approach Volume: 101 vph

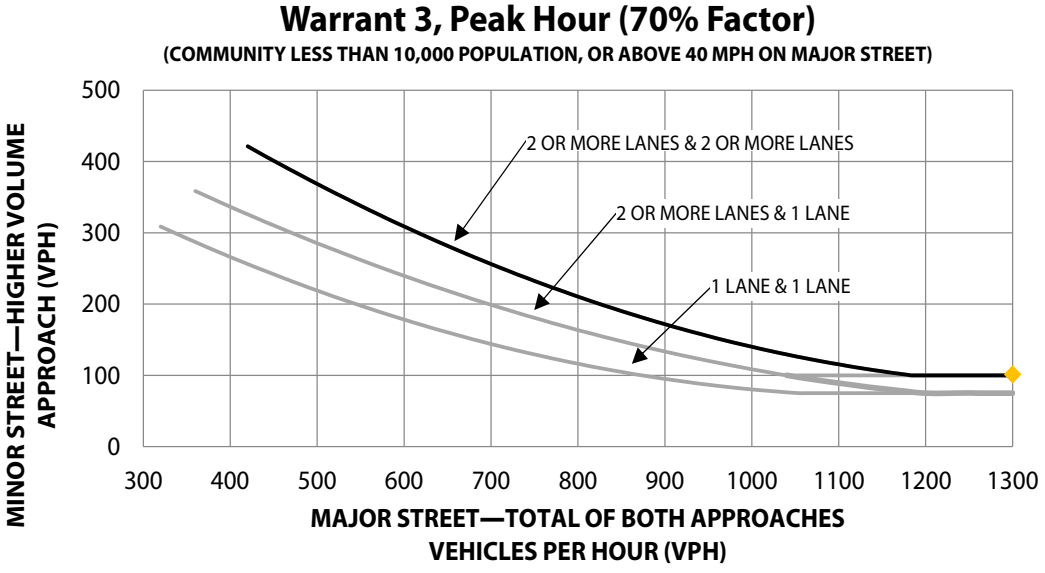
Condition A3 — Met

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

Total Entering Volume: 2502 vph

Condition B — Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 116 & W Cotati Ave
City of Cotati

Project Name: Cotati Village

Intersection: 2

	Major Street	Minor Street
Street Name	SR 116	W Cotati Ave
Direction	E-W	N-S
Number of Lanes	2	2
Approach Speed	45	35

Population less than 10,000? No
Date of Count: Wednesday, February 23, 2022
Scenario: PM Threshold Estimate

Warrant 3 Met?: Met when either Condition A or B is met — **Yes**

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

Condition A1 — Not Met

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

Minor Approach Delay: 0.6 vehicle-hours

Condition A2 — Not Met

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

Minor Approach Volume: 103 vph

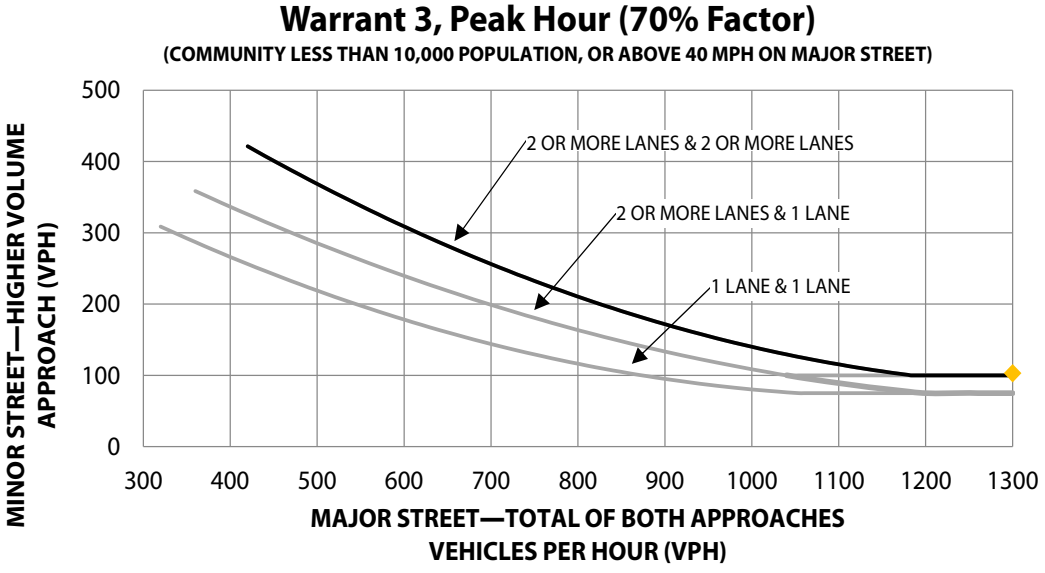
Condition A3 — Met

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

Total Entering Volume: 2010 vph

Condition B — Met

The plotted point falls above the curve



Appendix F

Emergency Access Evaluation

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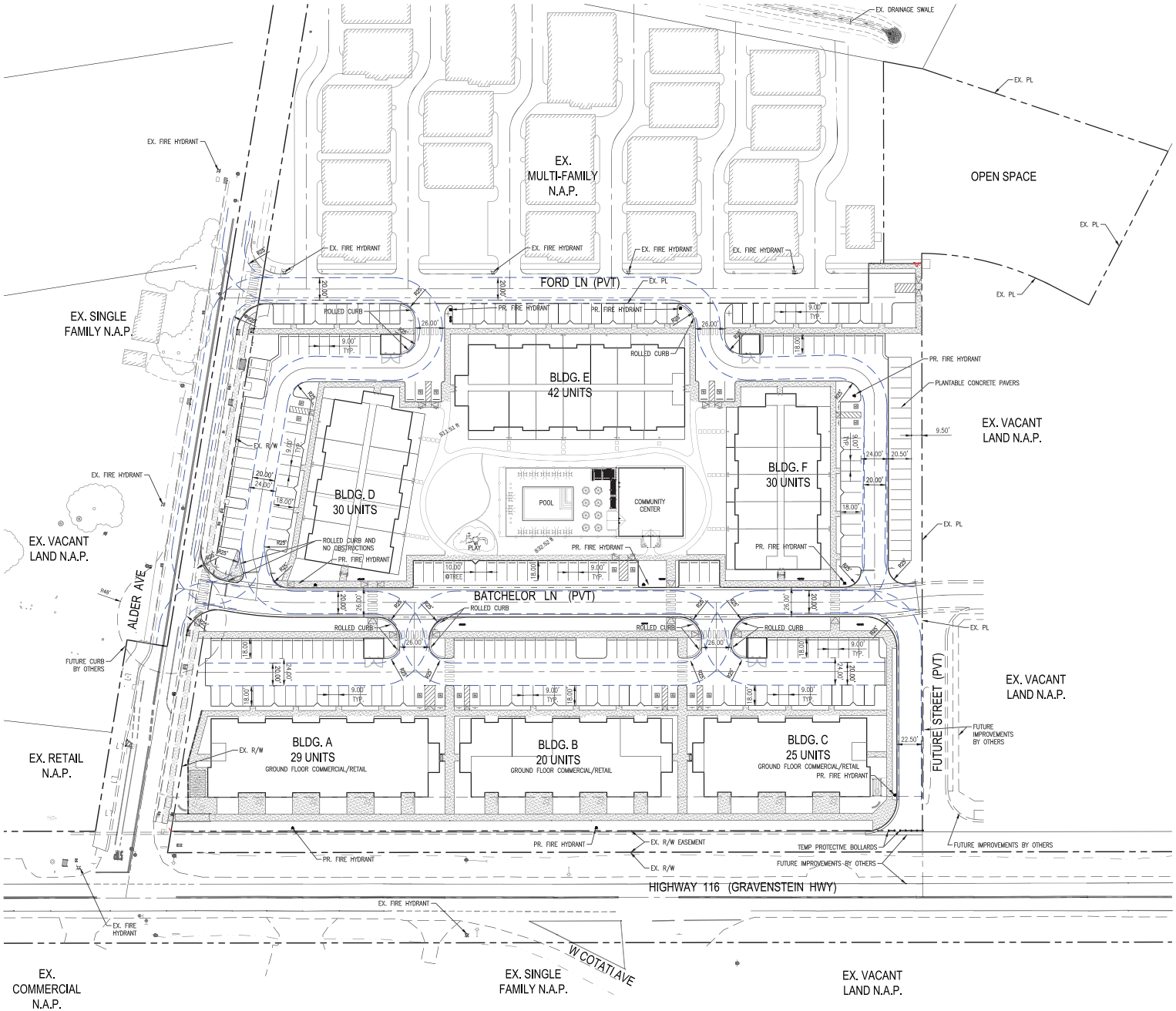

FIRE TRUCK ACCESS DETAIL

MFKessler
Civil Engineering, Land Planning, Surveying
ONE VENTURE, SUITE 130
IRVINE, CA 92618
(949) 339-5330
MFKESSLER.COM

COTATI VILLAGE COMMUNITY

OCTOBER 26, 2022
COTATI, CA
DESIGN REVIEW
APPLICATION

1. THE COPYRIGHT OF THIS DRAWING IS VESTED IN MFKESSLER INC. AND IT MAY NOT BE REPRODUCED IN WHOLE OR PART OR USED FOR OTHER PURPOSES WITHOUT THE EXPRESS PERMISSION OF THE COPYRIGHT HOLDERS.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, LANDSCAPE ARCHITECT'S DRAWINGS AND SPECIFICATIONS
3. THIS SHEET DEPICTS THE FIRE ACCESS AND HYDRANT LOCATIONS.
4. FIRE ACCESS IS DEPICTED FOR EACH INTERSECTION. THE INSIDE RADIUS IS 25-FT AND THE OUTSIDE RADIUS IS 45-FT. THE WIDTH OF ALL ACCESS PATHS IS 20-FT. THIS COMPLIES WITH RANCHO ADOBE FIRE REQUIREMENTS.
5. THE HYDRANTS ARE LOCATED TO PROVIDE THE REQUIRED COVERAGE OF EACH BUILDING.
6. THIS SHEET IS PRESENTED IN COLOR.

REGISTERED PROFESSIONAL ENGINEER
ALI MONSHI-TABRIZI
C67674
EXP. 06/30/2023
CIVIL
STATE OF CALIFORNIA

1" = 40'
0 10 20 40

FIRE ACCESS & HYDRANT PLAN

C2-1

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Appendix G

Intersection Level of Service Calculations

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Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.029

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	15	12	621	669	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	15	12	621	669	7
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	3	173	186	2
Total Analysis Volume [veh/h]	6	17	13	691	744	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.01	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	26.90	13.65	8.98	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.04	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.98	4.98	1.00	1.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.96		0.17		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.34					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	23	636	2	13	676
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	23	636	2	13	676
Peak Hour Factor	0.9110	0.9110	0.9110	0.9110	0.9110	0.9110
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	175	1	4	186
Total Analysis Volume [veh/h]	5	25	698	2	14	742
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	27.71	13.40	0.00	0.00	8.85	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.26	0.26	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	6.38	6.38	0.00	0.00	1.04	1.04
d_A, Approach Delay [s/veh]	15.96		0.00		0.17	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.014

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	3	13	11	617	532	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	13	11	617	532	11
Peak Hour Factor	0.8950	0.8950	0.8950	0.8950	0.8950	0.8950
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	3	172	149	3
Total Analysis Volume [veh/h]	3	15	12	689	594	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.01	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	22.67	11.97	8.55	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.03	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.99	2.99	0.81	0.81	0.00	0.00
d_A, Approach Delay [s/veh]	13.97		0.15		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.27					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.030

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	30	619	4	56	546
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	30	619	4	56	546
Peak Hour Factor	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	168	1	15	148
Total Analysis Volume [veh/h]	5	33	672	4	61	593
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.01	0.00	0.06	0.01
d_M, Delay for Movement [s/veh]	27.39	13.33	0.00	0.00	8.98	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.30	0.30	0.00	0.00	0.19	0.19
95th-Percentile Queue Length [ft/ln]	7.53	7.53	0.00	0.00	4.64	4.64
d_A, Approach Delay [s/veh]	15.34		0.00		0.84	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.83					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.190

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	15	12	621	669	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	14	12	10	17	19
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	29	24	631	686	26
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	8	7	175	191	7
Total Analysis Volume [veh/h]	32	32	27	702	763	29
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.07	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	33.97	18.61	9.17	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.02	1.02	0.08	0.08	0.00	0.00
95th-Percentile Queue Length [ft/ln]	25.45	25.45	2.08	2.08	0.00	0.00
d_A, Approach Delay [s/veh]	26.29		0.34		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	1.22					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	23	636	2	13	676
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	34	0	0	36
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	23	670	2	13	712
Peak Hour Factor	0.9110	0.9110	0.9110	0.9110	0.9110	0.9110
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	184	1	4	195
Total Analysis Volume [veh/h]	5	25	735	2	14	782
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	30.12	13.88	0.00	0.00	8.97	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	6.86	6.86	0.00	0.00	1.07	1.07
d_A, Approach Delay [s/veh]	16.78		0.00		0.16	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	24.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.213

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	3	13	11	617	532	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	34	19	21	23	18	42
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	32	32	640	550	53
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	9	9	178	153	15
Total Analysis Volume [veh/h]	41	36	36	712	612	59
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.06	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	31.18	17.40	8.82	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.13	1.13	0.10	0.10	0.00	0.00
95th-Percentile Queue Length [ft/ln]	28.13	28.13	2.55	2.55	0.00	0.00
d_A, Approach Delay [s/veh]	24.79		0.42		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.48					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	30	619	4	56	546
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	57	0	0	60
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	30	676	4	56	606
Peak Hour Factor	0.9110	0.9110	0.9110	0.9110	0.9110	0.9110
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	186	1	15	166
Total Analysis Volume [veh/h]	5	33	742	4	61	665
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.07	0.01	0.00	0.06	0.01
d_M, Delay for Movement [s/veh]	31.68	14.15	0.00	0.00	9.19	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.34	0.34	0.00	0.00	0.20	0.20
95th-Percentile Queue Length [ft/ln]	8.48	8.48	0.00	0.00	4.88	4.88
d_A, Approach Delay [s/veh]	16.65		0.00		0.78	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.80					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave-Village Ave

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.446

Intersection Setup

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	25.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Base Volume Input [veh/h]	23	8	80	42	3	9	41	961	16	74	1151	180
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	8	80	42	3	9	41	961	16	74	1151	180
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	2	20	11	1	2	10	240	4	19	288	45
Total Analysis Volume [veh/h]	23	8	80	42	3	9	41	961	16	74	1151	180
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	1	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups			1,8									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	5	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	29	29	9	20	0	21	182	0	29	190	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No		No		No	No		No	No	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		No	No		No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	240	240	240	240	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
I2, Clearance Lost Time [s]	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	54	21	21	17	178	178	25	186	186
g / C, Green / Cycle	0.10	0.22	0.09	0.09	0.07	0.74	0.74	0.10	0.78	0.78
(v / s)_i Volume / Saturation Flow Rate	0.02	0.05	0.03	0.01	0.03	0.26	0.26	0.06	0.36	0.37
s, saturation flow rate [veh/h]	1432	1611	1309	1651	1309	1870	1859	1309	1870	1783
c, Capacity [veh/h]	182	362	72	144	53	1388	1380	97	1450	1383
d1, Uniform Delay [s]	98.23	76.35	116.08	100.78	118.81	10.80	10.80	114.50	9.48	9.53
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.31	0.35	7.36	0.25	23.67	0.71	0.71	12.78	1.09	1.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.24	0.58	0.08	0.77	0.35	0.35	0.77	0.47	0.47
d, Delay for Lane Group [s/veh]	98.54	76.70	123.44	101.03	142.49	11.51	11.51	127.28	10.57	10.69
Lane Group LOS	F	E	F	F	F	B	B	F	B	B
Critical Lane Group	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.35	4.60	2.82	0.71	2.94	9.33	9.27	5.01	12.59	12.20
50th-Percentile Queue Length [ft/ln]	33.64	114.96	70.53	17.76	73.39	233.13	231.83	125.31	314.68	305.00
95th-Percentile Queue Length [veh/ln]	2.42	8.12	5.08	1.28	5.28	14.33	14.27	8.68	18.41	17.93
95th-Percentile Queue Length [ft/ln]	60.56	202.88	126.95	31.98	132.11	358.33	356.68	217.11	460.14	448.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	98.54	76.70	76.70	123.44	101.03	101.03	142.49	11.51	11.51	127.28	10.62	10.69
Movement LOS	F	E	E	F	F	F	F	B	B	F	B	B
d_A, Approach Delay [s/veh]	81.23			118.46			16.79			16.78		
Approach LOS	F			F			B			B		
d_I, Intersection Delay [s/veh]	21.67											
Intersection LOS	C											
Intersection V/C	0.446											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	111.17	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.137	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	133	1483	1550
d_b, Bicycle Delay [s]	72.07	104.53	8.01	6.07
l_b,int, Bicycle LOS Score for Intersection	1.743	1.649	2.399	2.719
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: SR 116/New North-South Street

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.314

Intersection Setup

Name							SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							SR 116			SR 116		
Base Volume Input [veh/h]	2	8	31	82	3	23	131	876	5	47	762	351
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	31	82	3	23	131	876	5	47	762	351
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	8	21	1	6	33	219	1	12	191	88
Total Analysis Volume [veh/h]	2	8	31	82	3	23	131	876	5	47	762	351
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permis	Overla	ProtPer	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Overla
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	10	30	0	10	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	29	0	9	29	0	9	23	0	9	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	R	L	C	C	L	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	15	10	5	40	40	3	38
g / C, Green / Cycle	0.21	0.21	0.21	0.14	0.07	0.58	0.58	0.04	0.55
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.03	0.01	0.07	0.24	0.24	0.03	0.21
s, saturation flow rate [veh/h]	1786	1407	1590	1589	1781	1870	1866	1781	3560
c, Capacity [veh/h]	496	367	534	219	129	1073	1071	79	1944
d1, Uniform Delay [s]	21.99	22.38	22.57	26.46	32.54	8.33	8.33	32.90	9.20
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	0.10	0.08	0.21	86.29	1.17	1.17	7.01	0.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.08	0.10	0.10	1.01	0.41	0.41	0.59	0.39
d, Delay for Lane Group [s/veh]	22.01	22.48	22.65	26.67	118.84	9.50	9.51	39.91	9.80
Lane Group LOS	C	C	C	C	F	A	A	D	A
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	0.40	0.72	0.34	5.12	3.06	3.05	0.88	2.71
50th-Percentile Queue Length [ft/ln]	3.20	9.93	17.96	8.43	128.10	76.47	76.34	22.04	67.63
95th-Percentile Queue Length [veh/ln]	0.23	0.71	1.29	0.61	8.87	5.51	5.50	1.59	4.87
95th-Percentile Queue Length [ft/ln]	5.76	17.87	32.33	15.18	221.81	137.65	137.41	39.67	121.74

Movement, Approach, & Intersection Results

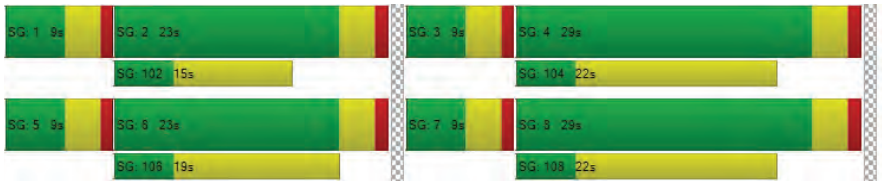
d_M, Delay for Movement [s/veh]	22.01	22.01	0.00	22.59	22.65	26.67	118.84	9.50	9.51	39.91	9.80	0.00
Movement LOS	C	C		C	C	C	F	A	A	D	A	
d_A, Approach Delay [s/veh]	22.01			23.46			23.66			11.55		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	18.59											
Intersection LOS	B											
Intersection V/C	0.314											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.62	26.62	26.62	26.62
I_p,int, Pedestrian LOS Score for Intersection	1.950	2.180	2.829	2.927
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	970	970	542	542
d_b, Bicycle Delay [s]	9.29	9.29	18.62	18.62
I_b,int, Bicycle LOS Score for Intersection	1.576	1.738	2.395	2.227
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave-Village Ave

Control Type:	Signalized	Delay (sec / veh):	28.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.729

Intersection Setup

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Base Volume Input [veh/h]	28	6	127	281	10	110	83	1501	36	142	1404	167
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	84	0	0	79	0	0	2	0	0	9
Total Hourly Volume [veh/h]	28	6	43	281	10	31	83	1501	34	142	1404	158
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	2	11	70	3	8	21	375	9	36	351	40
Total Analysis Volume [veh/h]	28	6	43	281	10	31	83	1501	34	142	1404	158
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Overla	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	1	7	4	5	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	0	0	5	0	0	0	0	0	0	0	0
Maximum Green [s]	30	90	90	30	90	90	90	90	0	90	90	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	49	15	9	40	5	5	176	0	15	186	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No	No		No	No	No	Yes		No	Yes	
Maximum Recall		No	No		No	No	No	No		No	No	
Pedestrian Recall		No	No		No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO Cotati Village Project 5/11/2023
Version 2022 (SP 0-6)

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	101	101	101	101	101	101	101	101	101	101
L, Total Lost Time per Cycle [s]	4.00	2.00	4.00	2.00	0.00	4.00	4.00	0.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	31	49	27	40	11	46	46	16	51	51
g / C, Green / Cycle	0.31	0.49	0.27	0.40	0.11	0.45	0.45	0.16	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.21	0.02	0.06	0.41	0.41	0.11	0.42	0.43
s, saturation flow rate [veh/h]	1393	1619	1356	1650	1306	1870	1855	1306	1870	1805
c, Capacity [veh/h]	512	758	384	625	197	846	839	262	939	907
d1, Uniform Delay [s]	24.71	14.70	37.70	19.96	43.98	25.70	25.77	41.25	21.58	21.90
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.04	2.76	0.04	1.43	4.49	4.70	1.74	2.13	2.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.06	0.73	0.07	0.42	0.91	0.91	0.54	0.84	0.85
d, Delay for Lane Group [s/veh]	24.75	14.73	40.46	20.01	45.41	30.20	30.46	42.99	23.70	24.40
Lane Group LOS	C	B	D	C	D	C	C	D	C	C
Critical Lane Group	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.48	0.62	6.91	0.62	2.00	16.45	16.46	3.37	14.66	14.72
50th-Percentile Queue Length [ft/ln]	12.08	15.62	172.72	15.43	50.11	411.19	411.40	84.16	366.44	367.99
95th-Percentile Queue Length [veh/ln]	0.87	1.12	11.22	1.11	3.61	23.10	23.11	6.06	20.94	21.01
95th-Percentile Queue Length [ft/ln]	21.75	28.11	280.49	27.78	90.21	577.46	577.72	151.49	523.41	525.30

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.75	14.73	14.73	40.46	20.01	20.01	45.41	30.33	30.46	42.99	24.01	24.40
Movement LOS	C	B	B	D	C	C	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	18.38			37.86			31.10			25.63		
Approach LOS	B			D			C			C		
d_I, Intersection Delay [s/veh]	28.92											
Intersection LOS	C											
Intersection V/C	0.729											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	182.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	32.72	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.381	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1191	814	3413	3612
d_b, Bicycle Delay [s]	8.25	17.73	25.16	32.72
l_b,int, Bicycle LOS Score for Intersection	1.825	2.221	2.896	2.973
Bicycle LOS	A	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: SR 116/New North-South Street

Control Type:	Signalized	Delay (sec / veh):	30.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	1.222

Intersection Setup

Name							SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							SR 116			SR 116		
Base Volume Input [veh/h]	39	5	115	461	9	210	111	1040	37	95	1219	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	5	115	461	9	210	111	1040	37	95	1219	238
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	29	115	2	53	28	260	9	24	305	60
Total Analysis Volume [veh/h]	39	5	115	461	9	210	111	1040	37	95	1219	238
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permis	Overla	ProtPer	Permis	Permis	Protect	Permis	Overla	Protect	Permis	Permis
Signal Group	3	8	1	7	4	0	5	2	0	1	6	7
Auxiliary Signal Groups			1,8									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	5	10	5	5	10	0	5	10	0	5	10	5
Maximum Green [s]	10	30	30	10	30	0	30	30	0	30	30	10
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	26	11	9	26	0	12	54	0	11	53	9
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	Yes	No	No	Yes	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	42	31	31	22	8	50	7	49	49
g / C, Green / Cycle	0.31	0.42	0.31	0.31	0.22	0.08	0.50	0.07	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	1.44	0.07	0.16	0.37	0.13	0.06	0.29	0.05	0.40	0.40
s, saturation flow rate [veh/h]	31	1589	1271	714	1589	1781	3560	1781	1870	1766
c, Capacity [veh/h]	141	670	364	366	353	138	1774	120	913	862
d1, Uniform Delay [s]	30.73	18.03	33.91	36.31	34.86	45.37	17.77	45.94	21.72	22.01
k, delay calibration	0.50	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.78	0.12	1.39	12.69	1.61	11.11	1.43	11.90	8.36	9.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.17	0.56	0.73	0.59	0.80	0.59	0.79	0.81	0.83
d, Delay for Lane Group [s/veh]	36.52	18.15	35.30	49.00	36.47	56.47	19.21	57.83	30.08	31.83
Lane Group LOS	D	B	D	D	D	E	B	E	C	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.05	1.66	2.66	5.52	4.69	3.04	7.96	2.64	15.21	15.13
50th-Percentile Queue Length [ft/ln]	26.22	41.46	66.42	138.07	117.35	75.94	198.96	65.97	380.15	378.21
95th-Percentile Queue Length [veh/ln]	1.89	2.99	4.78	9.38	8.25	5.47	12.58	4.75	21.60	21.51
95th-Percentile Queue Length [ft/ln]	47.19	74.64	119.55	234.42	206.18	136.69	314.62	118.75	540.02	537.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.52	36.52	18.15	42.90	49.00	36.47	56.47	19.21	0.00	57.83	30.76	31.83
Movement LOS	D	D	B	D	D	D	E	B		E	C	C
d_A, Approach Delay [s/veh]	23.23			41.01			22.80			32.58		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	30.60											
Intersection LOS	C											
Intersection V/C	1.222											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	2.032	2.390	3.135	3.902
Crosswalk LOS	B	B	C	D
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	620	620	1000	980
d_b, Bicycle Delay [s]	23.81	23.81	12.50	13.01
l_b,int, Bicycle LOS Score for Intersection	1.822	2.682	2.509	2.840
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	23.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.163

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	9	23	17	616	658	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	17	10	0	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	40	27	616	658	37
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	11	8	171	183	10
Total Analysis Volume [veh/h]	29	44	30	685	732	41
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.16	0.09	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	32.23	17.55	9.12	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.00	1.00	0.09	0.09	0.00	0.00
95th-Percentile Queue Length [ft/ln]	24.97	24.97	2.32	2.32	0.00	0.00
d_A, Approach Delay [s/veh]	23.33		0.38		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.27					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	23	636	2	13	676
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	17	0	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	23	653	2	13	695
Peak Hour Factor	0.9110	0.9110	0.9110	0.9110	0.9110	0.9110
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	179	1	4	191
Total Analysis Volume [veh/h]	5	25	717	2	14	763
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.05	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	28.92	13.64	0.00	0.00	8.92	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.26	0.26	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	6.62	6.62	0.00	0.00	1.06	1.06
d_A, Approach Delay [s/veh]	16.37		0.00		0.16	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.192

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	14	37	23	605	507	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	20	25	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	57	48	605	507	81
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	16	13	168	141	23
Total Analysis Volume [veh/h]	38	63	53	673	564	90
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.19	0.11	0.05	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	30.31	16.70	8.83	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.26	1.26	0.15	0.15	0.00	0.00
95th-Percentile Queue Length [ft/ln]	31.49	31.49	3.83	3.83	0.00	0.00
d_A, Approach Delay [s/veh]	21.79		0.65		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.81					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	15.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	30	619	4	56	546
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	20	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	30	639	4	56	591
Peak Hour Factor	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	173	1	15	160
Total Analysis Volume [veh/h]	5	33	694	4	61	642
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.01	0.00	0.06	0.01
d_M, Delay for Movement [s/veh]	29.66	13.63	0.00	0.00	9.06	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.00	0.00	0.19	0.19
95th-Percentile Queue Length [ft/ln]	7.95	7.95	0.00	0.00	4.74	4.74
d_A, Approach Delay [s/veh]	15.92		0.00		0.78	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.80					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	36.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.350

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	9	23	17	616	658	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	41	31	22	10	17	38
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	54	39	626	675	56
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	15	11	174	188	16
Total Analysis Volume [veh/h]	56	60	43	696	751	62
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.35	0.12	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	44.78	27.77	9.32	0.00	0.00	0.00
Movement LOS	E	D	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.59	2.59	0.14	0.14	0.00	0.00
95th-Percentile Queue Length [ft/ln]	64.65	64.65	3.50	3.50	0.00	0.00
d_A, Approach Delay [s/veh]	35.95		0.55		0.00	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	2.73					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	23	636	2	13	676
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	51	0	0	55
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	23	687	2	13	731
Peak Hour Factor	0.9110	0.9110	0.9110	0.9110	0.9110	0.9110
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	6	189	1	4	201
Total Analysis Volume [veh/h]	5	25	754	2	14	802
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.05	0.01	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	31.47	14.13	0.00	0.00	9.03	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.28	0.28	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	7.12	7.12	0.00	0.00	1.09	1.09
d_A, Approach Delay [s/veh]	17.22		0.00		0.16	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.350

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	9	23	17	616	658	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	41	31	22	10	17	38
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	54	39	626	675	56
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	15	11	174	188	16
Total Analysis Volume [veh/h]	56	60	43	696	751	62
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane						
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.35	0.12	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	43.69	14.38	9.32	0.00	0.00	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.57	0.42	0.14	0.14	0.00	0.00
95th-Percentile Queue Length [ft/ln]	39.14	10.54	3.50	3.50	0.00	0.00
d_A, Approach Delay [s/veh]	28.47		0.55		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	2.22					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	43.8
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.464

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	14	37	23	605	507	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	39	46	23	18	87
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	76	69	628	525	123
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	21	19	175	146	34
Total Analysis Volume [veh/h]	76	85	77	699	584	137
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.46	0.15	0.07	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	53.00	35.51	9.14	0.00	0.00	0.00
Movement LOS	F	E	A	A	A	A
95th-Percentile Queue Length [veh/ln]	4.33	4.33	0.24	0.24	0.00	0.00
95th-Percentile Queue Length [ft/ln]	108.36	108.36	5.95	5.95	0.00	0.00
d_A, Approach Delay [s/veh]	43.77		0.91		0.00	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	4.66					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave

Control Type:	Two-way stop	Delay (sec / veh):	17.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.039

Intersection Setup

Name	W Cotati Ave		SR 116		SR 116	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	W Cotati Ave		SR 116		SR 116	
Base Volume Input [veh/h]	5	30	619	4	56	546
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	77	0	0	105
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	30	696	4	56	651
Peak Hour Factor	0.9210	0.9210	0.9210	0.9210	0.9210	0.9210
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	8	189	1	15	177
Total Analysis Volume [veh/h]	5	33	756	4	61	707
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	Yes					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.07	0.01	0.00	0.06	0.01
d_M, Delay for Movement [s/veh]	34.43	14.49	0.00	0.00	9.28	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.36	0.36	0.00	0.00	0.20	0.20
95th-Percentile Queue Length [ft/ln]	8.98	8.98	0.00	0.00	4.99	4.99
d_A, Approach Delay [s/veh]	17.34		0.00		0.74	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.78					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 116 / Alder Ave

Control Type:	Two-way stop	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.464

Intersection Setup

Name	Alder Ave		SR 116		SR 116	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Alder Ave		SR 116		SR 116	
Base Volume Input [veh/h]	14	37	23	605	507	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	54	39	46	23	18	87
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	76	69	628	525	123
Peak Hour Factor	0.8990	0.8990	0.8990	0.8990	0.8990	0.8990
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	21	19	175	146	34
Total Analysis Volume [veh/h]	76	85	77	699	584	137
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.46	0.15	0.07	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	50.33	13.30	9.14	0.00	0.00	0.00
Movement LOS	F	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.44	0.52	0.24	0.24	0.00	0.00
95th-Percentile Queue Length [ft/ln]	61.06	13.11	5.95	5.95	0.00	0.00
d_A, Approach Delay [s/veh]	30.78		0.91		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	3.40					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave-Village Ave

Control Type:	Signalized	Delay (sec / veh):	27.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.464

Intersection Setup

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	25.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Base Volume Input [veh/h]	23	8	80	46	3	17	46	956	16	74	1140	191
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	17	0	9	10	0	0	0	0	19
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	8	80	63	3	26	56	956	16	74	1140	210
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	2	20	16	1	7	14	239	4	19	285	53
Total Analysis Volume [veh/h]	23	8	80	63	3	26	56	956	16	74	1140	210
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Split	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	1	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups			1,8									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	5	5	10	0	5	10	0	5	10	0
Maximum Green [s]	30	30	30	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	29	29	9	20	0	21	182	0	29	190	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No		No		No	No		No	No	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		No	No		No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO Cotati Village Project 5/11/2023
Version 2022 (SP 0-6)

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	240	240	240	240	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
I2, Clearance Lost Time [s]	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	54	21	21	17	178	178	25	186	186
g / C, Green / Cycle	0.10	0.22	0.09	0.09	0.07	0.74	0.74	0.10	0.78	0.78
(v / s)_i Volume / Saturation Flow Rate	0.02	0.05	0.05	0.02	0.04	0.26	0.26	0.06	0.37	0.37
s, saturation flow rate [veh/h]	1413	1611	1309	1615	1309	1870	1859	1309	1870	1771
c, Capacity [veh/h]	166	362	72	140	53	1388	1380	97	1450	1373
d1, Uniform Delay [s]	98.88	76.34	117.37	101.86	119.07	10.79	10.79	114.49	9.58	9.64
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	0.35	31.41	0.72	176.88	0.70	0.71	12.74	1.12	1.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.24	0.87	0.21	1.05	0.35	0.35	0.77	0.48	0.48
d, Delay for Lane Group [s/veh]	99.25	76.68	148.78	102.58	295.95	11.49	11.49	127.23	10.70	10.86
Lane Group LOS	F	E	F	F	F	B	B	F	B	B
Critical Lane Group	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.35	4.60	4.65	1.74	5.96	9.26	9.21	5.01	12.92	12.49
50th-Percentile Queue Length [ft/ln]	33.68	114.95	116.27	43.50	148.99	231.54	230.24	125.29	323.09	312.21
95th-Percentile Queue Length [veh/ln]	2.43	8.11	8.19	3.13	10.14	14.25	14.19	8.68	18.82	18.28
95th-Percentile Queue Length [ft/ln]	60.63	202.87	204.69	78.29	253.43	356.31	354.67	217.08	470.48	457.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	99.25	76.68	76.68	148.78	102.58	102.58	295.95	11.49	11.49	127.23	10.76	10.86
Movement LOS	F	E	E	F	F	F	F	B	B	F	B	B
d_A, Approach Delay [s/veh]	81.36			134.22			26.99			16.83		
Approach LOS	F			F			C			B		
d_I, Intersection Delay [s/veh]	27.53											
Intersection LOS	C											
Intersection V/C	0.464											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	111.17	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.185	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	450	133	1483	1550
d_b, Bicycle Delay [s]	72.07	104.53	8.01	6.07
l_b,int, Bicycle LOS Score for Intersection	1.743	1.711	2.408	2.734
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: SR 116/New North-South Street

Control Type:	Signalized	Delay (sec / veh):	18.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.316

Intersection Setup

Name							SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							SR 116			SR 116		
Base Volume Input [veh/h]	2	8	31	82	3	23	131	876	5	47	762	351
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	10	0	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	8	31	82	3	23	131	886	5	47	771	351
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	8	21	1	6	33	222	1	12	193	88
Total Analysis Volume [veh/h]	2	8	31	82	3	23	131	886	5	47	771	351
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permis	Overla	ProtPer	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Overla
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Maximum Green [s]	10	30	0	10	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	29	0	9	29	0	9	23	0	9	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	Yes	No		Yes	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	L	C	R	L	C	C	L	C
C, Cycle Length [s]	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	15	15	15	10	5	40	40	3	38
g / C, Green / Cycle	0.21	0.21	0.21	0.14	0.07	0.58	0.58	0.04	0.55
(v / s)_i Volume / Saturation Flow Rate	0.01	0.02	0.03	0.01	0.07	0.24	0.24	0.03	0.22
s, saturation flow rate [veh/h]	1786	1407	1590	1589	1781	1870	1866	1781	3560
c, Capacity [veh/h]	496	367	534	219	129	1073	1071	79	1944
d1, Uniform Delay [s]	21.99	22.38	22.57	26.46	32.54	8.36	8.36	32.90	9.23
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	0.10	0.08	0.21	86.29	1.19	1.19	7.01	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.02	0.08	0.10	0.10	1.01	0.42	0.42	0.59	0.40
d, Delay for Lane Group [s/veh]	22.01	22.48	22.65	26.67	118.84	9.55	9.56	39.91	9.84
Lane Group LOS	C	C	C	C	F	A	A	D	A
Critical Lane Group	Yes	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.13	0.40	0.72	0.34	5.12	3.11	3.10	0.88	2.75
50th-Percentile Queue Length [ft/ln]	3.20	9.93	17.96	8.43	128.10	77.65	77.51	22.04	68.67
95th-Percentile Queue Length [veh/ln]	0.23	0.71	1.29	0.61	8.87	5.59	5.58	1.59	4.94
95th-Percentile Queue Length [ft/ln]	5.76	17.87	32.33	15.18	221.81	139.77	139.53	39.67	123.61

Movement, Approach, & Intersection Results

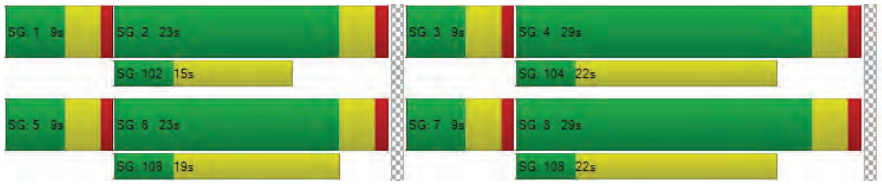
d_M, Delay for Movement [s/veh]	22.01	22.01	0.00	22.59	22.65	26.67	118.84	9.56	9.56	39.91	9.84	0.00
Movement LOS	C	C		C	C	C	F	A	A	D	A	
d_A, Approach Delay [s/veh]	22.01			23.46			23.56			11.57		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	18.54											
Intersection LOS	B											
Intersection V/C	0.316											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.62	26.62	26.62	26.62
I_p,int, Pedestrian LOS Score for Intersection	1.950	2.180	2.835	2.932
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	970	970	542	542
d_b, Bicycle Delay [s]	9.29	9.29	18.62	18.62
I_b,int, Bicycle LOS Score for Intersection	1.576	1.738	2.403	2.234
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: SR 116 / W Cotati Ave-Village Ave

Control Type:	Signalized	Delay (sec / veh):	42.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.772

Intersection Setup

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			Yes			No			No		

Volumes

Name	W Cotati Ave			Village Ave			SR 116			SR 116		
Base Volume Input [veh/h]	28	6	127	292	10	134	95	1489	36	142	1379	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	20	0	10	25	0	0	0	0	45
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	84	0	0	79	0	0	2	0	0	9
Total Hourly Volume [veh/h]	28	6	43	312	10	65	120	1489	34	142	1379	228
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	2	11	78	3	16	30	372	9	36	345	57
Total Analysis Volume [veh/h]	28	6	43	312	10	65	120	1489	34	142	1379	228
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Split	Split	Overla	Split	Split	Overla	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	1	7	4	5	5	2	0	1	6	0
Auxiliary Signal Groups			1,8			4,5						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	0	0	5	0	0	0	0	0	0	0	0
Maximum Green [s]	30	90	90	30	90	90	90	90	0	90	90	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	9	49	15	9	40	5	5	176	0	15	186	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	0	0	5	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	10	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No	No		No	No	No	Yes		No	Yes	
Maximum Recall		No	No		No	No	No	No		No	No	
Pedestrian Recall		No	No		No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Generated with PTV VISTRO Cotati Village Project 5/11/2023
Version 2022 (SP 0-6)

Lane Group Calculations

Lane Group	L	C	L	C	L	C	C	L	C	C
C, Cycle Length [s]	133	133	133	133	133	133	133	133	133	133
L, Total Lost Time per Cycle [s]	4.00	2.00	4.00	2.00	0.00	4.00	4.00	0.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	0.00	0.00	2.00	0.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	41	66	37	59	20	61	61	22	63	63
g / C, Green / Cycle	0.31	0.49	0.28	0.45	0.15	0.46	0.46	0.17	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.02	0.03	0.23	0.05	0.09	0.41	0.41	0.11	0.43	0.45
s, saturation flow rate [veh/h]	1347	1619	1356	1622	1267	1870	1855	1267	1870	1780
c, Capacity [veh/h]	462	776	392	701	212	861	854	234	893	850
d1, Uniform Delay [s]	32.10	18.54	48.61	22.44	56.14	32.63	32.71	55.00	31.95	32.74
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.18	0.18	0.11	0.21	0.22
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.03	3.85	0.07	2.38	5.63	5.91	2.56	7.81	12.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.06	0.80	0.11	0.57	0.89	0.89	0.61	0.91	0.94
d, Delay for Lane Group [s/veh]	32.15	18.57	52.45	22.51	58.52	38.26	38.62	57.56	39.77	45.22
Lane Group LOS	C	B	D	C	E	D	D	E	D	D
Critical Lane Group	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.65	0.84	10.45	1.43	3.94	22.37	22.39	4.65	24.37	25.51
50th-Percentile Queue Length [ft/ln]	16.33	21.02	261.32	35.76	98.48	559.19	559.77	116.19	609.18	637.86
95th-Percentile Queue Length [veh/ln]	1.18	1.51	15.75	2.57	7.09	30.12	30.15	8.18	32.46	33.80
95th-Percentile Queue Length [ft/ln]	29.40	37.84	393.87	64.36	177.27	753.10	753.78	204.57	811.56	844.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	32.15	18.57	18.57	52.45	22.51	22.51	58.52	38.44	38.62	57.56	42.01	45.22
Movement LOS	C	B	B	D	C	C	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	23.51			46.65			39.91			43.69		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	41.97											
Intersection LOS	D											
Intersection V/C	0.772											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	182.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	9.24	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.439	0.000	0.000
Crosswalk LOS	F	B	F	F
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	906	619	2596	2747
d_b, Bicycle Delay [s]	19.84	31.60	5.89	9.24
l_b,int, Bicycle LOS Score for Intersection	1.825	2.329	2.917	3.010
Bicycle LOS	A	B	C	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Intersection Level Of Service Report
Intersection 3: SR 116/New North-South Street

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	1.225

Intersection Setup

Name							SR 116			SR 116		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	1	0	1	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name							SR 116			SR 116		
Base Volume Input [veh/h]	39	5	115	461	9	210	111	1040	37	95	1219	238
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	25	0	0	10	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	5	115	461	9	210	111	1065	37	95	1229	238
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	1	29	115	2	53	28	266	9	24	307	60
Total Analysis Volume [veh/h]	39	5	115	461	9	210	111	1065	37	95	1229	238
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permis	Overla	ProtPer	Permis	Permis	Protect	Permis	Overla	Protect	Permis	Permis
Signal Group	3	8	1	7	4	0	5	2	0	1	6	7
Auxiliary Signal Groups			1,8									
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lag	-	-
Minimum Green [s]	5	10	5	5	10	0	5	10	0	5	10	5
Maximum Green [s]	10	30	30	10	30	0	30	30	0	30	30	10
Amber [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	9	26	11	9	26	0	12	54	0	11	53	9
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	10	0	0	14	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	Yes	No	No	Yes	No		No	No		No	No	
Maximum Recall	No	No	No	No	No		No	No		No	No	
Pedestrian Recall	No	No	No	No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	R	L	C	L	C	C
C, Cycle Length [s]	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	0.00	0.00	0.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	31	42	31	31	22	8	50	7	49	49
g / C, Green / Cycle	0.31	0.42	0.31	0.31	0.22	0.08	0.50	0.07	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	1.44	0.07	0.16	0.37	0.13	0.06	0.30	0.05	0.40	0.41
s, saturation flow rate [veh/h]	31	1589	1271	714	1589	1781	3560	1781	1870	1767
c, Capacity [veh/h]	141	670	364	366	353	138	1774	120	913	863
d1, Uniform Delay [s]	30.73	18.03	33.91	36.31	34.86	45.37	17.95	45.94	21.81	22.11
k, delay calibration	0.50	0.11	0.11	0.50	0.11	0.11	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.78	0.12	1.39	12.69	1.61	11.11	1.52	11.90	8.64	10.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.17	0.56	0.73	0.59	0.80	0.60	0.79	0.82	0.83
d, Delay for Lane Group [s/veh]	36.52	18.15	35.30	49.00	36.47	56.47	19.47	57.83	30.45	32.32
Lane Group LOS	D	B	D	D	D	E	B	E	C	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.05	1.66	2.66	5.52	4.69	3.04	8.24	2.64	15.42	15.38
50th-Percentile Queue Length [ft/ln]	26.22	41.46	66.42	138.07	117.35	75.94	206.01	65.97	385.40	384.42
95th-Percentile Queue Length [veh/ln]	1.89	2.99	4.78	9.38	8.25	5.47	12.95	4.75	21.86	21.81
95th-Percentile Queue Length [ft/ln]	47.19	74.64	119.55	234.42	206.18	136.69	323.70	118.75	546.38	545.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	36.52	36.52	18.15	42.90	49.00	36.47	56.47	19.47	0.00	57.83	31.18	32.32
Movement LOS	D	D	B	D	D	D	E	B		E	C	C
d_A, Approach Delay [s/veh]	23.23			41.01			22.96			32.98		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	30.78											
Intersection LOS	C											
Intersection V/C	1.225											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersection	2.032	2.390	3.145	3.912
Crosswalk LOS	B	B	C	D
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	620	620	1000	980
d_b, Bicycle Delay [s]	23.81	23.81	12.50	13.01
l_b,int, Bicycle LOS Score for Intersection	1.822	2.682	2.530	2.848
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-