Dutch Bros Coffee on Country Club Drive Traffic Impact Study



Draft Report

Located In: City of Madera, Madera County, CA

Prepared For: Barghausen Consulting Engineers, Inc

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Dutch Bros Tia (01-24-22)

January 24, 2022

EXECUTIVE SUMMARY

The proposed Dutch Bros Coffee project is located within the City of Madera along the eastside of Country Club Drive ± 400 ft. south of Clark Drive and ± 600 ft. north of Sherwood Way. The parcel (APN: 003-210-019)) is zoned C1 (Light Commercial) and is 28,685-square-foot (0.66 acre) in size, with a proposed 950 sq. ft. building with a double drive through and 8 parking stalls (7 regular and 1 ADA). A separate covered service window will be offered for walk-up customers on the northern side of the building opposite the drive-through service window. Other site improvements include a bicycle rack, trash enclosure, ADA path of travel, and landscaping. Dutch Bros Coffee is considered a "cafe" for the purposes of applying the City's use regulations. The drive-through use requires a Conditional Use Permit application in the C1 zone.

Two intersections were selected for analysis: (1) Country Club Drive / Project Driveway (unsignalized) and (2) Country Club Drive / Sherwood Way (signalized), with existing AM and PM peak hour traffic counts collected on Wednesday, December 1, 2021.

The City of Madera's General Plan establishes that "*the City shall seek to maintain Level of Service (LOS) C at all times on all roadways and intersections in Madera*". The traffic analysis found that both intersections satisfy this criteria by operating at LOS C or better during both the AM and PM peak periods for all of the following analysis scenarios contained within this analysis: (1) Existing (No Project); (2) Existing Plus Approved Projects (EPAP) (No Project); (3) Cumulative (2042) (No Project); (4) EPAP Plus Project; and (5) Cumulative (2042) Plus Project. The *Country Club Commercial Center* located on Country Club Drive approximately ¹/₄ mile north of the proposed Dutch Bros Coffee project was the only Approved project considered within this analysis.

Project trip generation for the proposed project was established within the July 21, 2021 report prepared by K.D. Anderson & Associates, Inc. titled "TRIP GENERATION ASSESSMENT FOR DUTCH BROTHERS RESTAURANT". The project is estimated to generate a total of 133 AM and 93 PM peak hour trips, of which 100 AM and 70 PM peak hour trips are considered pass-by trips which already exist along adjacent roadways and will be diverted to the project. Thus 33 AM and 23 PM peak hour primary project trips are estimated will be newly generated trips generated by the project and added to adjacent roadways. Project trips were assigned to adjacent roadways assuming that 50% would be to/from the north along Country Club Drive, 25% would be to/from the south along Country Club Drive south of Sherwood Way, and 25% would be to/from the project to provide for a conservative worst-case analysis. It is recognized that in reality some project trips would utilize driveways to/from the adjacent parking lot along Clark Street to the north or Sherwood Way to the south.

Although a southbound left-turn lane does not currently exist at the project driveway, some left-turn s do currently exist at this location, and are assumed within the analysis. Following discussions with City of Madera engineering staff, it was determined a left-turn lane would likely be necessary at this location, and was assumed as a baseline condition for this analysis. This study recommends that the existing median between Clark Street and the project driveway be modified to provide for a southbound left-turn lane into the project driveway. The traffic analysis indicates a peak hour queue demand of a single vehicle (± 25 ft) along this approach. This report provides a conceptual diagram of how the approach could accommodate a ± 150 ft left turn lane.

Approximately 450 feet of stacking space within 2 drive-through lanes will be is available behind the drivethrough window to accommodate up to 22 vehicles, with a bypass lane that can accommodate an additional 3 vehicles during peak hours on an as-needed basis. This queue stacking storage would easily accommodate the maximum observed peak hour stacking queue of 14 vehicles at surveyed California locations

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TRAFFIC COUNTS

K.D. ANDERSON TRIP GENERATION REPORT

INTERSECTION LOS OPERATIONS

Existing – No Project Existing Plus Approved Project (EPAP) – No Project Cumulative (2042) – No Project

EPAP Plus Project Cumulative (2042) Plus Project

SECTION 1 -INTRODUCTION

This Traffic/Transportation Impact Study (TIS) was prepared to assess the potential traffic impacts resulting from development of the proposed Dutch Bros Coffee on Country Club Drive in Madera, CA.

GENERAL PROJECT DESCRIPTION

The proposed Dutch Bros Coffee project is located within the City of Madera along the eastside of Country Club Drive approximately 400 ft. south of Clark Drive and 600 ft. north of Sherwood Way. The parcel (APN: 003-210-019)) is zoned C1 (Light Commercial) and is 28,685-square-foot (0.66 acre) in size, with a proposed 950 sq. ft. building with a double drive through and 8 parking stalls (7 regular and 1 ADA). A separate covered service window will be offered for walk-up customers on the northern side of the building opposite the drive-through service window. Other site improvements include a bicycle rack, trash enclosure, ADA path of travel, and landscaping.

Dutch Bros Coffee is considered a "cafe" for the purposes of applying the City's use regulations. The drivethrough use requires a Conditional Use Permit application in the C1 zone.

Figure 1 shows the site plan of the proposed project, with details from the site plan provided below.

PROJECT DATA

NAME: DUTCH BROS COFFEE - CA1207 - MADER LOCATION: COUNTRY CLUB DRIVE, MADERA, CA 93	RA, CA 638	
APN: 003-210-019		
PROPOSED USE: DRIVE-THRU COFFEE STAND		
LOT AREA: GROSS PROJECT AREA: 21,160 S PARCEL AREA: 28,685 SF (0.66	SF (0.48 ACRES ACRES))
ZONING: C1 (LIGHT COMMERCIAL)		
FLOOD PLAIN: ZONE "X"		
BUILDING: BUILDING AREA: 950 SO. FT. BUILDING HEIGHT: 24'-0" FIRE SPRINKLERS: NOT REQUIRED)	
PARKING SPACES: - REQUIRED: 4 SPACES (1 PER 300 SF BUILI - PROPOSED: 7 REGULAR SPACES, 1 ADA STA - EXISTING: 5 SPACES	DING AREA) LL	
PROPOSED GROUND COVER SUMMARY:		
BUILDINGS (INCLUDES TRASH ENCLOSURE): PARKING AND MANEUVERING:	1,190 SF 11,953 SF	(5.6%) (56.5%)
WALKWAYS: LANDSCAPE:	2,557 SF 5,460 SF	(12.1%) (25.8%)

ZONE OF IMPACT DESCRIPTION

Figure 2 provides an aerial photo of the project study area including location of the project and study intersections.

A detailed description of the study area is provided in the EXISTING (NO PROJECT) CONDITIONS section of this report including detailed descriptions of major roadways serving the project site, intersections selected for analysis, and a description of other transportation modes within the area (i.e. transit and non-motorized forms of transportation including bicycle and pedestrian facilities).





The following are the major roadways which would be providing access to the proposed project, and connectivity to the surrounding area.

- Country Club Drive
- Sherwood Way

Intersections along these roadways have been selected for detailed analysis within this traffic study, which are listed within the Analysis Locations section below.

ANALYSIS PARAMETERS

The overall purpose of this TIS report is to summarize the impacts which would result from development of the proposed project to the roadway network (and other transportation facilities) serving the proposed project. Although potential impacts to a variety of transportation services and facilities are analyzed within this TIS, the focus is primarily on project impacts to key study intersections during the AM and PM peak periods for Existing and Cumulative Conditions (2042). These and other parameters of the TIS are outlined in further detail below.

Analysis Guidelines

This TIS was prepared using criteria as established through consultations with City of Madera Engineering Department and Madera County Transportation Commission.

Analysis Locations

The City of Madera Engineering Department established the project's zone of impact and which roadways and intersections might potentially be significantly impacted by the proposed project, identifying the following intersections as critical study intersections requiring AM and PM peak hour analysis for all analysis scenarios.

- 1. Country Club Drive / Project Driveway
- 2. Country Club Drive / Sherwood Way

Figure 3 provides both an aerial photo and turning movement diagram of each of the study intersections.

Analysis Scenarios

Analysis scenarios describe the status of the transportation setting (including traffic operations) during a particular analysis year (or planning scenario) either in the absence of the proposed project (to establish a baseline for comparison), or following development of the proposed project. Analysis scenarios typically provide a description of major roadways within the study area, key study intersections (control, geometrics, and operations), and other transportation services and facilities which would serve the project site. The following traffic scenarios (described in detail below) are analyzed as a part of this report:

- *Existing* Conditions (also referred to as *Existing (No Project)* Conditions)
- *Existing Plus Approved Projects* Conditions (also referred to as EPAP Conditions)
- EPAP Plus Project Conditions
- *Cumulative (2042) No Project* Conditions
- Cumulative (2042) Plus Project Conditions



Additional Analysis Parameters

The November 16, 2021 "Draft Conditions of Approval" for the proposed project established by the City of Madera's Engineering Department (with additional requirements from the City of Madera's Building Department) outlines the traffic impacts that require analysis, and the threshold requiring a full traffic impact study, as noted below in #30 and #31:

30. The developer shall determine the typical number of peak hour trips generated by the project based on similar Dutch Bros establishments. A traffic impact study shall be required if the project generates over 100 peak hour trips or if other impacts are identified that may require focused study of traffic impacts. Regardless of whether a formal traffic impact study is required, at a minimum, the intersection of Country Club Drive and the driveway immediately south of the project site shall be evaluated relative to need for installation of a south to east left turn lane and the safety of west to south left turn movements. Based on the results and recommendations of this evaluation, additional study may be required at the intersection of Country Club Drive and Sherwood Way.

31. Queuing of vehicles shall not result in the blocking of traffic circulation on-site, shall not impede access to or from parking areas, and shall not impede the flow of traffic within the public rights-of-way. A circulation management plan shall be submitted to the Planning Department for review and approval to ensure that the queuing of vehicles does not impede circulation or access on- or off-site.

Madera City Engineer Keith Helmuth identified the following assumptions and scope requirements for a traffic impact study within a November 18 email to Brianna Uy - Project Planner - Berghaus Consulting Engineers, Inc.:

This scope is based on assumption the project will request left turn access from Country Club onto the driveway south of the project site. If not, the scope will need to be adjusted.

- Trip Generation based on existing Dutch Bros We have already seen 133 am and 93 pm
- *Key intersections:*
 - Country Club and driveway immediately south of site
 - Country Club and Sherwood Detailed analysis is only required if driveway cannot permit full movements. Dependent on review of traffic engineer, it may be found that review of this location is not necessary given other access points available from Country Club Drive.
- Distribute and assignment project traffic and existing traffic based on traffic engineer's judgement. I see no need to count the entire shopping center for reassignment. Again, this currently assumes left turn access from the driveway south of project. If left turn access is not proposed, how will traffic be addressed at this location given it will be unreasonable to assume customers will not turn left
- LOS for existing, opening day and 20 year horizon
- Evaluate offset driveways at driveway relative to safety and need for installation of median that restricts left turn out of driveway or other measures that address LOS and safety
- Left turn storage requirement shall be determined at those approaches impacted by the use.
- Drive through Evaluate queue requirement See draft conditions for limits for current language. Wyatt should have current language. In no case should queues have the potential to impact the public right-of-way

<u>Existing Conditions</u> - Existing conditions refer to current year analysis scenarios typically taken to be the year in which the traffic analysis is conducted.

"Existing" conditions describes the existing transportation setting (including traffic operations) without the proposed project. This scenario is alternately referred to as *"Existing (No Project)"* conditions.

"Existing Plus Approved Projects" or *"EPAP"* conditions describe the transportation network (and corresponding traffic operations) following development of nearby projects that are approved or established by the governing public agency as being a reasonably foreseeable in the near future. As such, this scenario might possibly include new internal roadways and intersections, access driveways, frontage roadway improvements, etc. included as part of the project.

"Existing Plus EPAP Plus Project" conditions describe the transportation network (and corresponding traffic operations) following development of the project and the addition of project generated traffic to the Existing Plus Approved Projects scenario. As such, this scenario might possibly include new internal roadways and intersections, access driveways, frontage roadway improvements, etc. included as part of the project.

<u>Cumulative Conditions</u> - Cumulative conditions refer to analysis scenarios following build out of the General Plan, generally about 15-25 years into the future. The Madera County Transportation Commission (MCTC) currently utilizes 2042 within their regional travel demand forecasting model, thus 2042 is assumed as the "cumulative year" within this analysis.

"Cumulative (2042) No Project" conditions describes the future transportation network (and corresponding traffic operations) which are expected to exist following build out of the General Plan. This scenario would include any roadway and intersection improvements which are included as conditions of approval of applicable approved/pending projects, programmed improvements, and possibly improvements as assumed within the transportation model used in establishing the General Plan's Transportation and Circulation Element.

"Cumulative (2042) Plus Project" conditions describes the future transportation network (and corresponding traffic operations) which are expected to exist following build out of the General Plan, with traffic associated with the proposed project added in. This scenario would also include future assumed improvements as described above.

SECTION 2 -ANALYSIS METHODOLOGIES

This section outlines the methodologies, standards, and traffic operations analysis assumptions used to perform the traffic analysis.

2.1 – LEVEL OF SERVICE ANALYSIS METHODOLOGIES

Level of Service Concept

The operating conditions experienced by motorists are described as "Levels of Service" (LOS), which are standards established by transportation engineers for measuring traffic capacity and quality of service of roadways and intersections. Level of service is a qualitative and quantitative measure of the effect of a number of factors, including travel time and speed, delay, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service cover the entire range of traffic operations that might occur and range from LOS "A" (best) to "F" (worst). Levels of service "A" through "E" generally represent traffic volumes at less than roadway capacity, with LOS "A" representing traffic flow which is relatively free-flowing, and LOS "E" representing traffic flow which is nearing capacity and experiencing heavy delays. LOS "F" represents over capacity and/or forced flow conditions where the street system is totally saturated with traffic and movement is very difficult. **Table 1** provides a summary of quantitative LOS criteria for signalized and unsignalized intersections.

LOS		Signalized	Unsignalized		
LOS	Qualitative Description	Intersections	Intersections*		
Α	Free-flow travel with an excellent level of comfort and convenience and the freedom to maneuver.	Delay ≤10.0 sec	Delay ≤10.0 sec		
В	Stable operating conditions, but the presence of other road users causes a noticeable, though slight, reduction in comfort, convenience, and maneuvering freedom.	Delay ≥10.0 sec & ≤20.0 sec	Delay >10.0 sec & ≤15.0 sec		
C	Stable operating conditions, but the operation of individual users is significantly affected by the interaction with others in the traffic stream.	Delay ≥20.0 sec & ≤35.0 sec	Delay >15.0 sec & ≤25.0 sec		
D	High-density, but stable flow. Users experience severe restriction in speed and freedom to maneuver, with poor levels of comfort and convenience.	Delay >35.0 sec & ≤55.0 sec	Delay >25.0 sec & ≤35.0 sec		
Е	Operating conditions at or near capacity. Speeds are reduced to a low but relatively uniform value. Freedom to maneuver is difficult with users experiencing frustration and poor comfort and convenience. Unstable operation is frequent, and minor disturbances in traffic flow can cause breakdown conditions.	Delay >55.0 sec & ≤80.0 sec	Delay >35.0 sec & ≤50.0 sec		
F	Forced or breakdown conditions. This condition exists wherever the volume of traffic exceeds the capacity of the roadway. Long queues can form behind these bottleneck points with queued traffic traveling in a stop-and-go fashion.	Delay >80.0 sec	Delay >50.0 sec		

TABLE 1LEVEL OF SERVICE DEFINITIONS

Source: 2000 & 2010 Highway Capacity Manual, Transportation Research Board.

* Unsignalized Intersections = All-Way Stop Contol (AWSC), Two-Way Stop Control (TWSC), and Roundabouts

Intersection Operations Analysis Methodologies

Intersection levels of service for all intersection control types, including signalized intersections, two-way stop controlled unsignalized intersections, all-way stop controlled unsignalized intersections, and roundabouts, were calculated using methodologies outlined in the Transportation Research Board's *Highway Capacity Manual, 2010 (2010 HCM)*. Both qualitative and quantitative LOS definitions for different types of intersection controls, including the relationship of average delay to level of service for each control type, are outlined in **Table 1**.

<u>Signalized Intersections</u> - All signalized intersections (those controlled by traffic signals) were analyzed using the Highway Capacity Manual (HCM) 2010 methodology. This procedure calculates an average stopped delay per vehicle at a signalized intersection, and assigns a level of service designation based upon the delay.

<u>Unsignalized Intersections (TWSC)</u> - Unsignalized TWSC intersection analyses were conducted using the operational methodology outlined in the *Highway Capacity Manual* (Transportation Research Board, Washington D.C., 2010). This procedure calculates an average stopped delay per vehicle for each movement and assigns a level of service designation based upon the minor leg's worst movement average delay.

Intersection Operations Analysis Computer Software

<u>HCS7 Highway Capacity Software</u> - Both signalized and unsignalized intersection operations analysis were performed using McTrans' HCS7 (version 7.9.6) software, a traffic analysis program which provides for the input of all variables required to perform intersection operations analysis for a wide variety of methodologies, including methods and procedures documented in the Highway Capacity Manual (HCM). It can perform both planning and operational level analyses for surface streets, including intersections, freeways, arterials, etc. The underlying HCS model utilizes traffic engineering research and a significant peer review process both at the research level and Transportation Research Board (TRB) committee level for HCM adoption.

Intersection Operations Analysis Technical Parameters

<u>Saturation Flow Rates</u> - The saturation flow rate for intersection movements is defined within the Highway Capacity Manual as "the equivalent hourly rate at which previously queued vehicles can traverse an intersection approach under prevailing conditions, assuming that the green signal is available at all times, and no lost times are experienced, in vehicles per hour or vehicles per hour per lane." Ideal saturation flow rates of 1900 vehicles per hour (vph) as included within HCS7 as the default was used for this analysis, with HCS7 automatically adjusting downward as appropriate depending on the movement.

<u>Peak Hour Factors (PHF)</u> - The peak hour factor for intersections is defined within the Highway Capacity Manual (HCM) as "the hourly volume during the maximum-volume hour of the day divided by the peak 15-minute flow rate within the peak hour; a measure of traffic demand fluctuation within the peak hour." The actual existing peak hour factors as collected by National Data & Surveying Services were used for this analysis.

<u>**Truck Percentages**</u> – Truck percentages as collected by National Data & Surveying Services on Wednesday, December 1, 2021 as part of peak hour turning movement counts were utilized to establish truck percentages for this analysis. Based on those counts, a truck percentage of 3% was utilized for all main street approaches along Country Club Drive and Sherwood Way.

Bicycle & Pedestrian Volumes – Bicycle & Pedestrian Volumes as collected by National Data & Surveying Services on Wednesday, December 1, 2021 as part of peak hour turning movement counts were utilized to establish volumes for this analysis. Based on those counts, bicycle and pedestrian volumes ranging from 0-3 per hour were utilized along applicable movements.

<u>Minimum Traffic Signal Cycle Length</u> – For all signalized intersections and all analysis scenarios, a minimum cycle length of 60 seconds was used with increases in cycle length automatically changed through use of the cycle length optimization feature of HCS7.

<u>"Lost Time" Per Signal Phase</u> – For all signalized intersections and all analysis scenarios, 4 seconds of "lost time" (combined yellow and all-red clearance time) was assumed for each critical signal phase.

2.2 – STANDARDS OF SIGNIFICANCE CRITERIA

Standards of significance policies establish level of service thresholds for acceptable level of service operations of transportation facilities, as well as the policies regarding what triggers a significant project impact. The governing policy for a particular study intersection or roadway segment is that which is established by the agency which owns and maintains the facility, although it might be necessary to also consider contradicting policies of other agencies which may have some jurisdictional interest with the facility.

STANDARDS OF SIGNIFICANCE – GOVERNING DOCUMENTS

Standards of significance policies which are applicable for this traffic study include those for the City of Madera, which are described in detail below.

City of Madera Standards of Significance Criteria

Policy CI-23 from the City of Madera's General Plan Update Circulation Element sets forth LOS standards for the City, as follows:

The City shall seek to maintain Level of Service (LOS) C at all times on all roadways and intersections in Madera, with the following exceptions:

a) On arterial roadways or roadways with at-grade railroad crossings that were experiencing congestion exceeding LOS C during peak hour travel times as of the date this General Plan Update is adopted the City shall seek to maintain LOS D or better.

b) This policy does not extend to freeways (where Caltrans policies apply) or to private roadways.

c) In the Downtown District (as defined in the Land Use Element of this General Plan), the City shall seek to maintain LOS D.

SECTION 3 -BASELINE (NO PROJECT) CONDITIONS

This section describes the transportation settings which currently exists in the vicinity of the project site, as well those which are assumed will exist during the cumulative year (2042) analysis scenario without development of the project. These existing and cumulative year (2042) "no project" transportation settings provide a baseline against which "plus project" scenarios can be measured to identify impacts associated with the proposed project.

3.1 - EXISTING (NO PROJECT) CONDITIONS

Existing (No Project) conditions describes the current roadway network, study intersections and roadways, and other transportation facilities, which would serve the project site. Within this traffic study *Existing (No Project)* conditions is also alternatively referred to as simply "*Existing*" conditions."

EXISTING ROADWAY NETWORK

Country Club Drive is classified as an arterial roadway within the City of Madera general plan which serves as project access for the proposed project. It is a divided 4-lane roadway which begins in the south as the north leg of a T-intersection with the east-west arterial of Cleveland Avenue, and continues northward 0.8 miles to Ellis Street. The roadway exits the City of Madera at Ellis Street continuing northward into unincorporated Madera County as "County Road 86". Country Club Drive has a two-way center left turn lane along most of its length, except for periodic raised medians, and striped single lane left turn bays along north-south approaches to (from south-to-north) Cleveland Avenue, Sherwood Way, Clark Street, Tractor Supply Co. driveway, Adell Street, and Ellis Street. Raised medians exists along Country Club Drive between (1) the proposed Dutch Bros Coffee project site driveway and Clark Street, (2) for approximately 300 ft north of Clark Street, and (3) approximately 250 ft. in front of the Tractor Supply Co. Country Club Drive has a posted speed limit of 40 mph along its entire length. Parking is prohibited south of Clark Drive, with intermittent parking permitted north of Clark Drive. Country Club Drive has a curb-to-curb width of ± 65 ft. including a ± 12 ft. raised median north of the main project access driveway along the project frontage.

Sherwood Way is an undivided 2-lane local east-west roadway within the City of Madera located approximately 500 ft. south of the proposed project site driveway. The roadway begins at Country Club Drive and continues eastward 1 mile to North Lake Street with a curb-to-curb width of ± 50 ft., curbside parking along most of its length, and a posted speed limit of 40 mph eastward to Sonora Street when the speed limit drops to 35 mph as it enters residential development to the east. Sherwood Way narrows to a curb-to-curb width of ± 35 ft. east of North Lake Street.

Existing Intersection Geometrics, Control and Volumes

Intersection turning lane geometrics and control for Existing conditions are depicted in Figure 3.

Country Club Drive / Project Driveway – Unsignalized minor-street stop controlled intersection (with no east-west crosswalks) providing primary access to the proposed project comprised of the following 4 legs:

- <u>Northbound Country Club Drive (aka South Leg)</u> curb-to-curb width of ±65 ft. with 2 northbound and 2 southbound through lanes (± 12 ft. each), and a ±14 ft. two-way left-turn-lane (TWLTL) providing for northbound left turn lanes to the west leg (EB Madera Toyota North Driveway).
- <u>Southbound Country Club Drive (aka North Leg)</u> curb-to-curb width of ±65 ft. with 2 northbound and 2 southbound through lanes (± 12 ft. each), and a ±14 raised median which does not provide for a southbound left turn into the proposed project driveway. The raided median extends south

terminating approximately 7 ft. south of the northside curb of the project driveway. This results in the northern ¹/₄ of the driveway being blocked by the median.

- <u>Eastbound Driveway Madera Toyota North Driveway (aka West Leg)</u> unstriped stop-controlled driveway with curb-to-curb width of ±25 ft. This driveway has a centerline offset approximately 21 ft. south of the centerline of the project driveway on the opposite side of Country Club Drive, which requires eastbound through traffic to angle leftward approximately 20 ft. through the intersection to enter the project driveway.
- <u>Westbound Driveway Vallarta Supermarket South Driveway (aka East Leg) PROJECT</u> <u>DRIVEWAY</u> - – unstriped stop-controlled driveway with curb-to-curb width of ±25 ft. This driveway has a centerline offset approximately 21 ft. north of the centerline of the Madera Toyota North Driveway on the opposite side of Country Club Drive, which requires westbound through traffic to angle leftward approximately 20 ft. through the intersection to enter the Madera Toyota North Driveway.

Country Club Drive / Sherwood Way – Signalized intersection (with striped crosswalks connecting all 4 corners), comprised of the following 4 legs:

- <u>Northbound Country Club Drive (aka South Leg)</u> curb-to-curb width of ±65 ft. with 2 northbound through lanes (including a combined northbound through-right lane) and a ±60 ft. striped northbound left turn lane.
- <u>Southbound Country Club Drive (aka North Leg)</u> curb-to-curb width of ±65 ft. with 2 southbound through lanes (including a combined southbound through-right lane) and a ±85 ft. striped southbound left turn lane.
- <u>Westbound Sherwood Way (aka East Leg)</u> curb-to-curb width of ±50 ft. with a single eastbound lane, and a single westbound approach lane separating into a westbound left turn and westbound right turn lane. The westbound left turn lane also provides the opportunity for an (unstriped) westbound through movement to the driveway on the west side of the intersection. The opposite side driveway has a centerline offset approximately 20 ft. south of the centerline of Sherwood Way, which requires westbound through traffic to angle leftward approximately 20 ft. through the intersection to enter the opposite side driveway.
- <u>Eastbound Driveway (aka Eastbound Sherwood Way) (aka West Leg)</u> unstriped driveway with curb-to-curb width of ±30 ft. This driveway has a centerline offset approximately 21 ft. south of the centerline of Sherwood Way on the opposite side of Country Club Drive, which requires eastbound through traffic to angle leftward approximately 20 ft. through the intersection to enter Sherwood Way.

Existing AM and PM peak hour traffic volumes were collected at both study intersections by National Data & Surveying Services on Wednesday, December 1, 2021.

Existing (No Project) AM and PM peak hour traffic volumes are shown on Figure 4.

EXISTING LOS OPERATIONS

Intersection LOS Operations

Existing (No Project) AM and PM peak hour intersection traffic operations were quantified utilizing the existing intersection lane geometrics, and control presented in **Figure 3. Table 2** contains a summary of the *Existing (No Project)* intersection LOS conditions. Detailed level of service sheets are provided within the APPENDIX.

TABLE 2EXISTING (NO PROJECT) CONDITIONS:INTERSECTION LEVELS OF SERVICE

					Existing (No Project)						
#	Intersection	Control Type	Target LOS	Approach	Delay (sec)	LOS	Signal Warrant Met?				
AM PEAK HOUR											
Country Club Drive / EB Driveway 12.1 B											
	East Driveway	(TWSC)		WB PROJECT Driveway	13.3	В					
1	(Project Driveway-	Two-Way	С	NB Country Club Dr	0.2	А					
1	Vallarta Supermarket S. Dwy /	Stop Control		SB Country Club Dr	0.1	А					
	West Driveway (Madera Toyota N. Dwy)	Intersection		WORST	13.3	В	no				
2	Country Club Drive / Sherwood Way	Signal	С		16.0	В					
		PI	M PEA	K HOUR							
	Country Club Drive /			EB Driveway	12.8	В					
	East Driveway	(TWSC)		WB PROJECT Driveway	13.9	В					
1	(Project Driveway-	Two-Way	C	NB Country Club Dr	0.0	А					
1	Vallarta Supermarket S. Dwy /	Stop Control	C	SB Country Club Dr	0.2	А					
	West Driveway (Madera Toyota N. Dwy)	intersection		WORST	13.9	В	no				
2	Country Club Drive / Sherwood Way	Signal	С		18.1	В					

Notes: TWSC = Two Way Stop Control Unsignalized Intersection - Delays & LOS reported for (1) each individual approach; & (2) along the "WORST" approach (which establishes Delay/LOS for entire intersection per HCM 2010).

As shown in the above table, both study intersections were found to be currently operating at acceptable levels of service (LOS C or better) for *Existing Conditions* during both the AM and PM peak hour periods.

PEDESTRIAN AND BICYCLE FACILITIES

Pedestrian Facilities

Sidewalks currently exist along Country Club Drive within the vicinity of the project site, as well as along Sherwood Way.

Bicycle Facilities

Although the City of Madera is steadily adding bicycle facilities to City streets, there are currently no designated or marked bike routes or paths along the study roadways or intersections.

PUBLIC TRANSIT SYSTEM & FACILITIES

Public Bus Service

Madera Area Express (MAX) provides bus service to the City of Madera via two different bus routes, Route 1 which serves the project study area, and Route 2 which operating west of SR-99 and a portion of Southeast Madera. Route 1 provides bus service Monday through Saturday along Country Club Drive, with the closest stop to the proposed project site located at Sherwood Way approximately 500 ft. to the south.



Paratransit Services

City of Madera Dial-A-Ride (DAR) is a demand-response System only available for seniors and those with disabilities. Madera Dial-A-Ride is available Monday through Friday from 7:00 am to 6:30 pm, Saturdays from 9:00 am to 4:00 pm, and Sundays from 8:30 am to 2:30 pm.

3.2 - EXISTING PLUS APPROVED PROJECTS (EPAP) CONDITIONS

"Existing Plus Approved Projects" or *"EPAP" Conditions* describe the transportation network (and corresponding traffic operations) following development of nearby projects that are approved or established by the governing public agency as being a reasonably foreseeable in the near future.

Approved Projects

City of Madera engineering department staff identified the following as the only approved project for inclusion in the Dutch Bros Coffee traffic study.

The **Country Club Commercial Center** is located along the east side of Country Club Drive within the southeast quadrant of the Country Club Drive/Adele Street intersection approximately ¹/₄ mile north of the proposed Dutch Bros Coffee project. The proposed project would include a 12 position gas station, 4,000 sq. ft. convenience store, and a 5,800 sq. ft. square-foot retail center (containing a 2,200 sq. ft. coffee shop with drive-through window and 3,600 sq. ft. future retail space). The traffic study for the project establishes that the project will generate and distribute 1,284 net new daily trips, 76 net new AM peak hour trips (39 inbound / 37 outbound), and 105 net new PM peak hour trips (53 inbound / 53 outbound. These trips were distributed to the project study roadways using trip distribution patterns as established within the approved project's traffic study.

Intersection lane geometrics and traffic control for *Existing Plus Approved Project (EPAP) Conditions* are assumed to remain unchanged from Existing (No Project) conditions. AM and PM peak hour traffic volumes for *Existing Plus Approved Project (EPAP) Conditions* are presented in **Figure 5**, while AM and PM peak hour intersection LOS conditions are provided in **Table 3**. Detailed level of service sheets are provided within the APPENDIX.



					Existing Plus Approved Projects (EPAP)					
#	Intersection	Control Type	Target LOS M PEA	Approach K HOUR	Delay (sec)	LOS	Signal Warrant Met?			
1	Country Club Drive / East Driveway (Project Driveway- Vallarta Supermarket S. Dwy / West Driveway (Madera Toyota N. Dwy)	(TWSC) Two-Way Stop Control Intersection	С	EB Driveway WB PROJECT Driveway NB Country Club Dr SB Country Club Dr WORST	12.3 13.6 0.2 0.1 13.3	B B A A B	по			
2	Country Club Drive / Sherwood Way	Signal	С		15.9	В				
PM PEAK HOUR										
1	Country Club Drive / East Driveway (Project Driveway- Vallarta Supermarket S. Dwy / West Driveway (Madera Toyota N. Dwy)	(TWSC) Two-Way Stop Control Intersection	С	EB Driveway WB PROJECT Driveway NB Country Club Dr SB Country Club Dr WORST	13.1 14.3 0.0 0.2 13.9	B B A A B	no			
2	Country Club Drive / Sherwood Way	Signal	С		18.9	В				

 TABLE 3

 EXISTING PLUS APPROVED PROJECT (EPAP) CONDITIONS:

 INTERSECTION LEVELS OF SERVICE

Notes: TWSC = Two Way Stop Control Unsignalized Intersection - Delays & LOS reported for (1) each individual approach; & (2) along the "WORST" approach (which establishes Delay/LOS for entire intersection per HCM 2010).

As shown in the above table, both study intersections were projected to operating at acceptable levels of service (LOS C or better) for *Existing Plus Approved Project (EPAP) Conditions* for both the AM and PM peak hour periods.

3.3 - CUMULATIVE (2042) CONDITIONS SETTING

Cumulative conditions refer to analysis scenarios following build out of the General Plan, generally about 15-25 years into the future. Based on information provided by City of Madera engineering staff, and Madera County Transportation Commission (MCTC), this analysis scenario is assumed to correspond to the year to 2042 to be consistent with MCTC 2042 regional transportation model.

"Cumulative (2042) No Project" provides a baseline against which "Cumulative (2042) Plus Project" conditions are compared to identify potential project impacts. This scenario would include any roadway and intersection improvements which are included as conditions of approval of applicable approved/pending projects, and programmed improvements.

CUMULATIVE 2042 (NO PROJECT) ROADWAY NETWORK AND IMPROVEMENTS

At the direction of City of Madera engineering staff, the "Cumulative (2042)" baseline analysis scenario assumes that all study intersections will remain unimproved.

CUMULATIVE 2042 (NO PROJECT) INTERSECTION VOLUMES

Cumulative (2042) No Project Volumes

Future 2042 traffic volumes were established for the designated study intersections using the following two sources:

- "Traffic Impact Analysis for Country Club Commercial Center" by KD Anderson & Associates, Inc. (September 29, 2020) – which was the sole "approved project" included within this analysis. The Country Club Commercial Center is located approximately ¼ mile north of the proposed Dutch Bros Coffee project, and includes intersection volumes for all analysis scenarios included within this analysis (i.e. Existing (No Project), Existing Plus Approved Project (EPAP), Cumulative 2042 No Project, EPAP Plus Project, Cumulative 2042 Plus Project). The Country Club Commercial Center traffic study included intersection volumes for the Country Club Commercial Center project driveway along Country Club Drive north of Clark Drive, and the intersection of Country Club Drive/Adell Street north of the Country Club Commercial Center project site.
- 2) 2042 loaded daily volumes along Country Club Drive in the vicinity of the project from the Madera County Transportation Commission (MCTC) model.

Cumulative 2042 peak hour traffic volumes at the two study intersections were established through use of both sources, applying projected growth patterns and balancing using Furness balancing techniques.

Cumulative (2042) No Project AM and PM peak hour traffic volumes are shown on Figure 6.

CUMULATIVE (2042) NO PROJECT LOS OPERATIONS

Intersection LOS Operations

Intersection lane geometrics and traffic control for *Cumulative (2042) No Project Conditions* are assumed to remain unchanged from Existing (No Project) conditions. AM and PM peak hour traffic volumes for *Cumulative (No Project) Conditions* are presented in Figure 6, while AM and PM peak hour intersection LOS conditions are provided in **Table 4**. Detailed level of service sheets are provided within the APPENDIX.



TABLE 4
CUMULATIVE (2042) NO PROJECT CONDITIONS:
INTERSECTION LEVELS OF SERVICE

					Cumulative (No Project)						
#	Intersection	Control Type	Target LOS	Approach	Delay (sec)	LOS	Signal Warrant Met?				
AM PEAK HOUK											
1	Country Club Drive / East Driveway (Project Driveway-	(TWSC) Two-Way	С	EB Driveway WB PROJECT Driveway NB Country Club Dr	12.3 13.6 0.2	B B A					
	Vallarta Supermarket S. Dwy / West Driveway	Stop Control Intersection		SB Country Club Dr WORST	0.1 13.6	A B					
2	Country Club Drive / Sherwood Way	Signal	С		16.3	В					
		PI	M PEA	K HOUR							
1	Country Club Drive / East Driveway (Project Driveway- Vallarta Supermarket S. Dwy / West Driveway	(TWSC) Two-Way Stop Control Intersection	С	EB Driveway WB PROJECT Driveway NB Country Club Dr SB Country Club Dr WORST	13.1 14.3 0.0 0.2 14.3	B B A A B	no				
2	Country Club Drive /	Signal	С		20.6	С					

Notes: TWSC = Two Way Stop Control Unsignalized Intersection - Delays & LOS reported for (1) each individual approach; & (2) along the "WORST" approach (which establishes Delay/LOS for entire intersection per HCM 2010).

As shown in the above table, both study intersections were projected to operate at acceptable levels of service (LOS C or better) for *Cumulative (2042) No Project* conditions during both the AM and PM peak hour periods.

SECTION 4 -PROPOSED PROJECT

PROJECT DESCRIPTION

The proposed Dutch Bros Coffee project is located within the City of Madera along the eastside of Country Club Drive approximately 400 ft. south of Clark Drive and 600 ft. north of Sherwood Way. The parcel (APN: 003-210-019)) is zoned C1 (Light Commercial) and is approximately ½ acre in size, with a proposed 925 sq. ft. building with a drive through and 8 parking stalls (7 regular and 1 ADA). **Figure 1** shows the site plan of the proposed project, with details from the site plan provided below.

The term "project," as used in this report, refers to the development of the project as described above.

PROJECT TRIP GENERATION

Project trip generation for the proposed project was established within the July 21, 2021 report prepared by K.D. Anderson & Associates, Inc. titled "TRIP GENERATION ASSESSMENT FOR DUTCH BROTHERS RESTAURANT" (included within APPENDIX).

Table 5 provides a summary of trip generation characteristics for the proposed project.

			AM	Peak Hour				PM	Peak Hou	ır	
Location	Size (sf)	Inbound	Outbound	Trips	Rate per ksf	Pass-by Rate	Inbound	Outbound	Trips	Rate per ksf	Pass-by Rate
			Dutch Brother	s Data Spec	ific to 800+	sf model w	ith dual drive	thru			
Stockton ¹	810	53%	47%	120	148.10		44%	56%	70	86.42	
Sacramento ²	865	48%	52%	120	138.72	1	47%	53%	112	129.48	
Roseville ³	865	52%	48%	114	131.79	1	50%	50%	66	76.30	
Average	24	51%	49%	118	139.54	1	47%	53%	83	97.40	
-	53 T		Desisations	for Brones	d Madana	California	Dutch Prothe				
	950	68	65	133	139.54	Caujornia	43	50	93	97.40	
Dutch Brothers	Pass-by	51	49	100		75%	33	37	70		75%7
	Primary	17	16	33			10	13	23		
					ITE Date	1					
ITE Code 9	38 ⁴	50%	50%	10 to 60	337.04			50%	50%	83.33	89%
ITE Code 9	375	51%	49%		88.90			50%	50%	43.48	
ITE Code 9	346					49%					50%
Crane Transportatio 4250 El Camino Av 2348 Sunrise Blvd, Coffee / Donut Sho Coffee / Donut Sho Fast-Food Restaura ascumad value beth	n Group, surv enue, Sacrame Roseville, CA p with Drive-7 p with Drive-7 nt with Drive-7 nt with Drive-9	ey of Stockton ento, CA 11/3/2 11/3/2020 Fhru and No In Fhru. Samples Thru Code 938 and	CA site 10/3/20 2020 door Dining. All ranged from 500 Code 934 values	19 samples are 0 to 5,500 sf	100 sf						

TABLE 5PROJECT TRIP GENERATION

Source: "Trip Generation Assessment for Dutch Brothers Restaurant", K.D. Anderson & Associates, Inc. (July 21, 2021)

As the above table shows, it is estimated that the proposed project site will generate a total of 133 AM peak hour trips, and 93 PM peak hour trips. However, because of the nature of the project not all of these "trips" will be new vehicular trips added to area roadways. This is because some of these "trips" will be existing trips traveling along Country Club Drive whether the project exists or not which will be captured by the project as a "pass-by trip", a trip diverted into the project site for a short period before continuing on their way along Country Club Drive.

<u>Pass-by Trips</u> - Pass-by trips are not new trips generated by the site, but rather trips which are already on the adjacent street system with or without the project that are assumed will stop at the project site as a matter of convenience. Although pass-by trips do not add trips to the local roadway network, they will alter the nature of trips at intersections adjacent to the project and driveways serving the project. As the above table shows, it is estimated that 100 AM peak hour trips, and 70 PM peak hour trips which already exist along adjacent roadways will be diverted to the project.

<u>Primary Project Trips</u> - Primary Project Trips are new trips generated by the project that do not include pass-by trips that are already on the street system. As the above table shows, it is estimated that 33 AM peak hour trips, and 23 PM peak hour trips will be generated by the project and added to adjacent roadways.

PROJECT TRIP DISTRIBUTION

Project traffic was distributed to area roadways based on engineering judgement guided by the following considerations:

- 1) Trip distribution assumed within the "Traffic Impact Analysis for Country Club Commercial Center" by KD Anderson & Associates, Inc. (September 29, 2020) located approximately ¼ mile north of the proposed Dutch Bros Coffee project, which assumed the following trip distribution patterns:
 - 60% North along Country Club Drive & east along Adell Street (AM & PM)
 - 40% South along Country Club Drive (AM & PM)
- 2) Assumption that coffee shop has smaller trip distribution area than a commercial center, with distribution based on assumed travel patterns relative to the nearby land uses, resulting in more traffic distributed to/from significant residential development south and east of the project site.

Based on these considerations, trip distibution for the Dutch Bros Coffee project was established as follows:

PROJECT TRIP DISTRIBUTION							
North along Country Club Drive (north of project driveway)	25%						
East along Sherwood Way	25%						
South along Country Club Drive (south of Sherwood Way)	50%						
TOTAL	100%						

TABLE 6PROJECT TRIP DISTRIBUTION

PROJECT TRIP ASSIGNMENT

Project traffic was assigned along the project driveway, onto the local roadway network, and through the designated key study intersections.

All new project trips were assigned to the Country Club Drive entrance to the project to provide for a conservative worst case analysis. It is recognized that in reality some project trips would utilize driveways to/from the adjacent parking lot along Clark Street to the north or Sherwood Way to the south.

Although a southbound left turn lane does not currently exist at this driveway, some left turns do currently exist at this location, and are assumed within this analysis. Following discussions with City of Madera engineering staff, it was determined a left-turn lane would likely be necessary at this location, and so was assumed as a baseline condition for this analysis. Additional discussion is provided within the Recommendation and Mitigations section

Resulting project trips along the effected turning movements at the 2 study intersections, assuming the trip generation, trip distribution, and trip assignment patterns described above, are shown in **Figure 7**.



SECTION 5 -EPAP PLUS PROJECT IMPACTS

EPAP (Existing Plus Approved Projects) Plus Project Conditions describes the transportation network (and corresponding traffic operations) following development of the project and the addition of project generated traffic, when added to the established EPAP (Existing Plus Approved Projects) scenario.

EPAP (Existing Plus Approved Projects) Plus Project Conditions were simulated by superimposing traffic generated by the proposed project onto *EPAP (Existing Plus Approved Projects) Conditions* intersection volumes. Intersection lane geometrics and traffic control for *EPAP (Existing Plus Approved Projects) Plus Project Conditions* are assumed to remain unchanged from Existing (No Project) conditions.

The resulting AM and PM peak hour traffic volumes for EPAP (*Existing Plus Approved Projects*) *Plus Project Conditions* are presented in **Figure 8**.

EPAP (EXISTING PLUS APPROVED PROJECTS) PLUS PROJECT LOS OPERATIONS

Intersection LOS Operations

Intersection lane geometrics and traffic control for *EPAP (Existing Plus Approved Projects) Plus Project Conditions* are assumed to remain unchanged from Existing (No Project) conditions.

Table 7 provides a summary of the *EPAP (Existing Plus Approved Projects) Plus Project* peak hour intersection levels of service, along with a comparison to *EPAP (No Project)* levels of service, and whether or not a study intersection has been significantly impacted by the project. Detailed level of service sheets are provided within the APPENDIX.



TABLE 7EPAP + PROJECT CONDITIONS:INTERSECTION LEVELS OF SERVICE

					Existing Plus Approved Projects (EPAP)			EPAP + PROJECT			
#	Intersection	Control Type	Target LOS	Approach	Delay (sec)	LOS	Signal Warrant Met?	Delay (sec)	LOS	Signal Warrant Met?	
AWI PLAK HOUK											
	Country Club Drive /			EB Driveway	12.3	В		12.5	В		
	Fast Driveway	(TWSC)		WB PROJECT Driveway	13.6	В		17.9	С		
1	(Project Driveway-	Two-Way	C	NB Country Club Dr	0.2	А		0.2	А		
1	Vallarta Supermarket S. Dwy /	Stop Control	C	SB Country Club Dr	0.1	А		0.8	А		
	West Driveway (Madera Toyota N. Dwy)	Intersection		WORST	13.3	В	no	13.3	В	no	
2	Country Club Drive / Sherwood Way	Signal	С		15.9	В		15.9	В		
				PM PEAK H	OUR						
	Country Club Drive /			EB Driveway	13.1	В		13.4	В		
		(THE C)		WB PROJECT Driveway	14.3	В		16.3	С		
	East Driveway (Project Driveway-	(TWSC) Two-Way		NB Country Club Dr	0.0	А		0.0	А		
1	Vallarta Supermarket S. Dwy /	Stop Control	С	SB Country Club Dr	0.2	А		0.6	А		
	West Driveway (Madera Toyota N. Dwy)	Intersection		WORST	13.9	В	no	13.9	В	no	
2	Country Club Drive / Sherwood Way	Signal	С		18.9	В		18.9	В		

Notes: TWSC = Two Way Stop Control Unsignalized Intersection - Delays & LOS reported for (1) each individual approach; & (2) along the "WORST" approach (which establishes Delay/LOS for entire intersection per HCM 2010).

As shown in the above table, both study intersections were projected to operating at acceptable levels of service (LOS C or better) for *EPAP (Existing Plus Approved Projects) Plus Project* conditions during both the AM and PM peak hour periods.

SECTION 6 -CUMULATIVE (2042) PLUS PROJECT IMPACTS

"Cumulative (2042) Plus Project" conditions describes the future transportation network (and corresponding traffic operations) following build out of the City of Madera General Plan. This analysis scenario is assumed to correspond to the year to be consistent with MCTC 2042 regional transportation model.

This scenario would include any programmed roadway and intersection improvements, however as noted before no assumed improvements are programmed for Cumulative 2042 conditions at the study intersections.

Cumulative (2042) Plus Project Conditions were simulated by superimposing traffic generated by the proposed project onto *Cumulative (2042) No Project* intersection volumes. The resulting *Cumulative (2042) Plus Project* traffic volumes are illustrated on **Figure 9**.

CUMULATIVE (2042) PLUS PROJECT LOS OPERATIONS

Intersection LOS Operations

Intersection lane geometrics and traffic control for *Cumulative (2042) Plus Project Conditions* are assumed to remain unchanged from Existing (No Project) conditions.

Table 8 provides a summary of the *Cumulative (2042) Plus Project* peak hour intersection levels of service, along with a comparison to *Cumulative (2042) No Project* levels of service, and whether or not a study intersection has been significantly impacted by the project. Detailed level of service sheets are provided within the APPENDIX.



TABLE 8CUMULATIVE (2042) PLUS PROJECT CONDITIONS:INTERSECTION LEVELS OF SERVICE

					Cumulative (No Project)			Cumul	Cumulative + PROJECT		
#	Intersection	Control Type	Target LOS	Approach	Delay (sec)	LOS	Signal Warrant Met?	Delay (sec)	LOS	Signal Warrant Met?	
AM PEAK HOUR											
1	Country Club Drive / East Driveway (Project Driveway- Vallarta Supermarket S. Dwy / West Driveway Country Club Drive / Sherwood Way	(TWSC) Two-Way Stop Control Intersection Signal	C C	EB Driveway WB PROJECT Driveway NB Country Club Dr SB Country Club Dr WORST 	12.3 13.6 0.2 0.1 13.6 16.3	B B A B B		12.6 19.6 0.1 0.5 19.6 16.3	B C A A C B		
				PM PEAK H	OUR						
1	Country Club Drive / East Driveway (Project Driveway- Vallarta Supermarket S. Dwy / West Driveway	(TWSC) Two-Way Stop Control Intersection	С	EB Driveway WB PROJECT Driveway NB Country Club Dr SB Country Club Dr WORST	13.1 14.3 0.0 0.2 14.3	B B A A B	no	16.1 19.3 0.0 0.3 19.3	C C A A C	no	
2	Country Club Drive / Sherwood Way	Signal	С		20.6	С		20.7	С		

Notes: TWSC = Two Way Stop Control Unsignalized Intersection - Delays & LOS reported for (1) each individual approach; & (2) along the "WORST" approach (which establishes Delay/LOS for entire intersection per HCM 2010).

As shown in the above table, both study intersections are projected to continue operating at acceptable levels of service for *Cumulative (2042) Plus Project* conditions during both the AM and PM peak hour periods.

SECTION 7 -RECOMMENDATIONS AND MITIGATIONS

This section summarizes impacts, recommended base improvements, and project-related mitigation measures at the study intersections as presented in the prior sections of this report.

INTERSECTION MITIGATIONS

All of the study intersections are projected to operate at acceptable LOS C or better. To accommodate the demand for southbound left turns from Country Club Drive to the project driveway it is recommended that a southbound left turn be constructed.

QUEUING ANALYSIS

The 95% queue length was analyzed along the proposed southbound left turn lane from Country Club Drive to the project driveway. **Table 9** shows that the left turn demand is projected to be minimal with a maximum storage length requirement of a single vehicle at 25 ft.

Queue lengths in number of vehicles as established above were then multiplied by an assumed average vehicle length of 25 ft. per vehicle to establish the total queue length in feet.

		AM Peak Hour		PM Peak Hour			
	9	95% Queue Lengt	h	95% Queue Length			
Analysis Scenario	Calculated Vehicle #	Rounded Up Vehicle #	Storage Length (ft)	Calculated Vehicle #	Rounded Up Vehicle #	Storage Length (ft)	
Existing (No Project)	0	1	25 ft.	0	1	25 ft.	
Existing Plus Approved Projects (EPAP)	0	1	25 ft.	0	1	25 ft.	
Cumulative (2042) No Project	0.1	1	25 ft.	0.1	1	25 ft.	
Existing Plus Approved Projects (EPAP) + PROJECT	0	1	25 ft.	0	1	25 ft.	
Cumulative (2042) + PROJECT	0.1	1	25 ft.	0.1	1	25 ft.	

TABLE 9 QUEUING ANALYSIS

PROJECT SITE ACCESS

Primary access to the project site will be provided via Country Club Drive. The traffic analysis shows that the existing driveway is sufficient to provide access to the proposed project without interfering with Country Club Drive traffic.

The traffic analysis assumed southbound left turn access to the project driveway, however Country Club Drive does not currently provide for a southbound left turn lane for this driveway. Thus, it is recommended that the median north of the driveway be rebuilt to include a southbound left turn lane that would provide for as much queue storage as possible given the constraints associated with the existing northbound left turn lane from Country Club Drive to Clark Street.

Figure 10 provides a conceptual sketch of the recommended southbound left turn atop a Google Earth aerial of County Clube Drive between Clark Street and the project driveway which could accommodate approximately 6 vehicles. Detailed plans will be provided with construction permits.

Conceptual Only Engineered Plans to be submitted with required permits at a later date.



10

Figure
DRIVE THROUGH QUEUE

Queueing and Stacking

Approximately 450 feet of stacking space is available behind the drive-through window to accommodate up to 22 vehicles. The drive-through will include a bypass lane that can accommodate stacking for an additional three (3) vehicles during peak hours on an as-needed basis. Dutch Bros Coffee will implement a runner system at the proposed facility that is designed to increase speed and efficiency in serving drive through customers. Dutch Bros Coffee employees travel from vehicle to vehicle to greet customers and take orders. These "runners" utilize a handheld device to transmit customer's orders to the multiple drink stations inside the building. Additionally, runners will charge individuals while in line, so by the time they arrive at the service window, they may pick up their order and be on their way. This system decreases wait times, while allowing the runners to have a more personal face-to-face interaction with customers.

The drive-through will not include any speaker boxes. All customer orders are taken in person either at the window or with a runner that carries a handheld device to transmit orders to the kitchen. This ordering process minimizes noise impacts and decreases the amount of vehicle idling at menu boards that are common at traditional drive-through facilities.

Table 10 provides a sample of surveyed stacking queues at other Dutch Bros Coffee sites in California.

				Drive	Stacking Queue Capacity	Maxi Obse Qu	mum erved eue
City	Address	Population	Site Status	Through Type	(per lane & total)	AM Peak	PM Peak
Elk Grove	8841 Sheldon Rd	172.886	Store Open	Dual	6 + 8 = 14		
Citrus Heights	7445 Madison Ave	87,910	Store Open	Dual	6 + 4 = 10	14	8
Auburn	405 Grass Valley Hwy	14,103	Store Open	Dual	3 + 3 = 6	12	6
Granite Bay	8663 Auburn Folsom Rd	22,439	Store Open	Dual	5 + 3 = 8	13	7
Lathrop	15135 Old Harlan Rd	23,284	Under Construction	Single	16		
Manteca	1105 West Yosemite	81,592	Under Construction	Single	25		
Turlock	1201 W. Monte Vista Ave	73,504	Store Open	Single	12		
Oakdale	810 N. Yosemite Ave	23,455	Store Open	Dual	4 + 8 = 12		
Stockton	1665 Pacific Ave	311,178	Store Open	Single	7		
Stockton	139 S. Center St	311,178	Store Open	Dual	6 + 5 = 11		
Stockton	1130 E. March Ln	311,178	Store Open	Single	14	13	10
Lodi	2602 W. Kettleman Ln	66,995	Store Open	Single	11	3	6
Oakley	1092 Main St	42,129	Store Open	Dual	4 + 4 = 8	13	10
Ripon	1220 W. Colony Rd	15,896		Single	17		
Cinala Cinala	Drive These Windows				MEDIAN	12	0
Single = Single	Drive I nru windown	<u>`</u>			MEDIAN	13	8
Duai = Duai Dri	ive inru windowns (i.e. 2 lan	es)			AVEKAGE	11	8
						15	10
					MAXIMUM	14	10

TABLE 10DUTCH BROS COFFEE – STACKING QUEUES

The table shows that the maximum observed stacking queue is 14 vehicles at the Citrus Heights location.

As noted previously, ± 450 feet of stacking space is available behind the drive-through window accommodating up to 22 vehicles, with an addition 3 vehicles within a bypass lane during peak hours on an as-needed basis for a grand total of 25 vehicles. Thus the drive through lanes at the proposed project site are designed to provide queue storage capacity for 8 to 11 more vehicles than the maximum peak hour storage required to accommodate the worst case observed queue at the other studied California locations.

Figure 11 shows a Sample Vehicle Stacking Queue at the proposed project site with random bumper-tobumper distances totaling 18 vehicles, with all vehicles contained fully within the drive through lanes and not blocking the adjacent driveway.

Thus, the drive through lanes as designed is projected to adequately accommodate worst case peak hour queues.

The City of Madera building code establishes the following requirement for stacking lanes:

"Queueing code: Uses, such as restaurant, that have peak hours or large volumes of patrons should provide stacking lanes with enough room to house 10 cars (10 stacking spaces)."

Since the site plan provides stacking for up to 25 vehicles, this requirement is satisfied.

Traffic Control Measures

The Dutch Bros Coffee site is proposing an extensive directional sign package that will direct customers throughout the site. In addition, the layout of the site was designed to create the best possible flow and the maximum queuing possible to reduce spillover onto neighboring properties or the public roads.

All staff are required to attend a monthly shop meeting to discuss traffic plans in detail. In addition, the staff will gather before each shift to ensure the traffic strategy is set.

Approximately three (3) or four (4) staff will be dedicated to the parking area throughout the day to take orders and receive payments. In addition, one (1) person's sole responsibility will be traffic control. Their tactics will include instructing all vehicles to pull forward as close as possible to utilize the maximum queuing available, directing cars into waiting area or the escape lane if needed, and ensuring no cars are blocking the road or areas they are not allowed to block.

These measures, in addition to implementing the runner system described above, will reduce customers time at the window to 30 to 45 seconds. If customers are taking longer than that timeframe, the drink runners can bring drinks to the customers in line behind the window to allow those customers to exit via the bypass lane. This means customers are not required to reach the drive-through window to receive their order and exit the site. These measures significantly minimize the potential for queuing spillover outside the dedicated drive-through lanes.

Site Design and Orientation

The proposed Dutch Bros Coffee will include a separate customer window that is oriented to the north interior of the site to serve pedestrian walk-up traffic only. The customer window faces the parking lot with included bicycle racks. The vehicle drive-through lane wraps around the north, west, and south property lines with the window and exit located on the south side of the property. A landscape hedge will be provided along the west property line to screen vehicle headlines from the right-of-way.



TECHNICAL APPENDIX

TRAFFIC COUNTS

K.D. ANDERSON TRIP GENERATION REPORT

INTERSECTION LOS OPERATIONS

Existing – No Project Existing Plus Approved Project (EPAP) – No Project Cumulative (2042) – No Project

EPAP Plus Project Cumulative (2042) Plus Project

Dutch Bros Coffee on Country Club Drive Traffic Impact Study





TECHNICAL

APPENDIX

Located In: City of Madera, Madera County, CA

Prepared For: Barghausen Consulting Engineers, Inc

Prepared By:

Larry Wymer Traffic Engineering



Larry C. Wymer, T.E.

January 24, 2022

Dutch Bros Coffee on Country Club Drive Traffic Impact Study

TECHNICAL

APPENDIX

TRAFFIC COUNTS

K.D. ANDERSON TRIP GENERATION REPORT

INTERSECTION LOS OPERATIONS

Existing – No Project Existing Plus Approved Project (EPAP) – No Project Cumulative (2042) – No Project

EPAP Plus Project Cumulative (2042) Plus Project



TRAFFIC COUNTS





NS:-Country Club Dr EW:-Madera Toyota North Dwy/ Vallarta Supermarkets South Dwy

Count ng Movement (National Data & Surveying Services Intersection Turnit

Project ID: 21-090136-002 Date: 12/1/2021

								Data -	Totals								
NS/EW Streets		Country	Club Dr			Country	Club Dr		Mader	a Toyota No upermarket	orth Dwy/Va s South Dwy	llarta /	Madera	a Toyota N upermarket	orth Dwy/Va ts South Dw	allarta v	
		NORTH	HBOUND			SOUTH	BOUND			EASTE	GNND			WEST	BOUND		
AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	TN	NR	NN	SL	ST	SR	SU	Ц	ET	ER	EU	ML	M	WR	MN	TOTAL
7:00 AN	1 2	57	4	0	0	60	2	0	0	0	0	0	0	0	Ţ	0	126
7:15 AN	1 2	94	m	0	0	69	1	0	0	0	0	0	1	0	1	0	171
7:30 AN	M M	146	ñ	0	0	113	-	0	0	0	0	0	2	0	-	0	269
7:45 AN	M M	176	1	0		161	-	0	1	0	1	0	2	0	0	0	347
8:00 AN	4	112	4	0	2	185	1	0	0	0	0	0	2	0	2	0	312
8:15 AN	1 1	107	m	0	0	150	2	0	0	0	m	0	2	0	6	0	277
8:30 AN	0	69	S	0	0	126	0	0	0	0	1	0		0	2	0	204
8:45 AN	0	94	8	0	0	96	2	0	0	0	0	0	0	0	1	0	201
	N	TIN	dN	VIII	Ū	t	9	10		t	£	ī	1111		-		
			YN 2		ה א	10	¥,	Ŋ,	д ·	<u>.</u>	۲.	3	ML	Ň	WR	NN	TOTAL
APPROACH %'s	1.66%	6689%	31 3.44%	0.00%	3 0.31%	960 98.66%	10 1.03%	0.00%	1 16.67%	0,00%	5 83,33%	0,00%	37 04%	0 00%	17 62 96%	0 00%	1907
PEAK HR		- MA 07:30 AM -	08:30 AM												07:20 10	010010	TOTAL
PEAK HR VOL	11	541	11	0	e	609	5	0	-	0	4	0	8	U	17	c	1205
PEAK HR FACTOR	0.688	0.768	0.688	0.000	0.375	0.823	0.625	0.000	0.250	0.000	0.333	0.000	1.000	0.000	0.333	0000	TECO
		0.7	82			0.8	20			0.4	1			0.4	55	20000	0.868
		NORTH	BOUND			SOUTH	BOUND			EASTB	OUND			WEST	BOUND		
ΡM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	N	SL	ST	SR	SU	Е	Ы	ER	EU	WL	WT	WR	MU	TOTAL
4:00 PM	0	116	6	0	-	142		0	0	0	S	0	11	0	3	0	286
4:15 PM	1	143	14	0	-	135	0	0		0	0	0	2	0	8	0	308
4:30 PM	0	116	11	0	m	140	0	0		1	0	0	6	0	S	0	286
4:45 PM		113	00	0	2	143	1	0		0	2	0	7	0	10	0	288
5:00 PM	0	129	10	0	-	124	0	0	2	0	m	0	9	0	10	0	285
MY CI:C	-	13/	12	0	0	125	0	0	0	0	m	0	m	0	9	0	287
5:30 PM	0	145	11	0		110	0	0		0	5	0	m	0	13	0	289
5:45 PM	0	114	œ	0	H	110	0	0	0	0	0	0	4	0	10	0	247
	N	TN	NR	NN	SL	ST	SR	SU	E	Ē	R	EU	ML	WT	WR	MU	TOTAL
TOTAL VOLUMES :	m	1013	83	0	5	1029	2	0	9	1	16	0	48	0	65	0	2276
APPROACH %'s :	0.27%	92.17%	7.55%	0.00%	0.96%	98.85%	0.19%	0.00%	26.09%	4.35%	69.57%	0.00%	42.48%	0.00%	57.52%	0.00%	
PEAK HR :		04:00 PM -	05:00 PM														TOTAL
PEAK HR VOL :	2	488	42	0	7	560	2	0	e	1	5	0	32	0	26	0	1168
PEAK HR FACTOR :	0.500	0.853	0.750	0.000	0.583	0.979	0.500	0.000	0.750	0.250	0.417	0.000	0.727	0.000	0.650	0.000	0.948
			71			10.0	5			c/'n	0	and a second sec		0.0	22		

Location: Country Club Dr & Madera Toyota North Dwy/Vallarta Supermarkets South Dwy City: Madera Control: 1-Way Stop(WB)

Country Club Dr & Madera Toyota North Dwy/Vallarta Supermarkets South Dwy

Prepared by National Data & Surveying Services Peak Hour Turning Movement Count

ID:	21-09	0136	-002				C	Country	Club [Dr			Day:	Wed	nesda	v
City:	Made	ra					SO	UTH	ΒΟι	JND			Date:	12/1/	2021	
URS	07:3	30 AM	- 08:30	AM	АМ	5	609	3	0	554	AM	7:0	00 AM -	09:00	AM	COU
AK HO		NC	DNE		NOON	0	0	0	0	0	NOON		NO	NE		NT PER
E E	04:0	00 PM	- 05:00	PM	РМ	2	560	7	0	517	PM	4:0	00 PM -	06:00	РМ	RIODS
rkets		AM	NOON	РМ		₽	↓	4	6			РМ	NOON	AM		Ma
uperma		16	0	4		0	0	0	0		0 1	26	0	12		dera To
arta Si	DNI				•			CON	TROL		0 🔶	0	0	0	WE	yota N
h Dwy	30U	0	0	0	3	0	1-\	Nay S	top(M	/B)	0 🗲	32	0	8	STI	orth Dy Sout
h D		1	0	3	4	0	TEV	1205	0	1168		0	0	0	BC	h D





g Movement Count

Project ID: 21-090136-001 Date: 12/1/2021

								nala -	I OLAIS								
NS/EW Streets:		Country	Club Dr			Country	Club Dr			Sherwo	od Way			Sherwoo	od Way		
		NORTH	HBOUND			SOUTH	BOUND			EAST	BOUND			WESTE	SOUND		
AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	Е	Ш	ER	EU	ML	WT	WR	MN	TOTAL
7:00 AM	0	64	17	0	e	51	0	0	0	0	0	0	27	0	9	0	168
7:15 AM	0	91	12	0	4	63	0	0	0	0	0	0	32	0	14	0	216
7:30 AM	0	130	21	0	10	102		0	-	0	0	0	40	0	29	0	334
7:45 AM	0	156	21	0	14	145	0	0	0	0	0	0	54	0	37	0	427
8:00 AM	0	112	26	0	21	158	0	-	-	0	0	0	34	0	21	0	374
8:15 AM	0	96	22	0	20	137	0	0	0	0	0	0	46	0	34	0	355
8:30 AM	Ч	06	29	0	24	103	0	0	-	Ţ	0	0	29	0	7	0	285
8:45 AM	0	104	16	1	10	91	0	0	-	0	0	0	44	0	12	0	279
	NL	NT	NR	NN	SL	ST	SR	SU	E	Ē	H	EU	ML	WT	WR	MU	TOTAL
TOTAL VOLUMES :	1 0 10%	843 83 55%	164 16 75%	1 0 10%	11 06%	850	1010%	1 0 10%	4 80.00%	1 20 000	0	0	306 65 67%	0	160	0	2438
	2/07-0	MA OC-FO	NV OC'OU	0/07-0	0/00:11	0/ 0/ 00	010710	0/ 07.0	0/ 00:00	2000/02	0,000	0/00-0	0/ 10-00	0,000	0/ 00-10	× 00.0	10-LOT
	-	- MAU	00 00	-	CC.	EAD	•	-	ſ	c	c	c	174	•	ţ	c	TOTAL
PEAN TR VOL :	0000	+94	200	0.00		242	-	T O	7 7	0.00	0.00		1/4	0	171	0	1490
PEAK HK FACIOK :	0.000	0.792	co8.0 25	0000	0.7/4	0.84 0.84	0.22.0	0.22.0	0.500	0.000	000.000	0.000	0.806	0.000	0.818	0.000	0.872
		NORTH	BOUND			SOUTH	SOUND			EASTE	SOUND			WESTB	DUND		Γ
PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	NL	TN	NR	N	SL	ST	SR	SU	Ц	Ш	ER	EU	WL	WT	WR	MU	TOTAL
4:00 PM	1	121	70	1	24	130	2	0	2	m	0	0	45	0	22	0	421
4:15 PM	0	148	41	1	20	126	0	1	-	0	0	0	70		21	0	430
4:30 PM	Ţ	114	53	0	30	109		0		2	0	0	48	0	21	0	380
4:45 PM	2	117	52	1	26	117	2	0	0	ŝ	4	0	67	2	21	0	411
5:00 PM	2	144	57	-	19	126	0	0	2	m	0	0	58	0	13	0	425
5:15 PM	2	151	54	0	19	104	2	0	2	2	0	0	48	0	14	0	398
5:30 PM	0	143	54	2	19	101	0	0	Ţ	Ţ	-	0	57	0	19	0	398
5:45 PM		111	43		17	89	2	0	m	0	0	0	46		18	0	332
	NL	NT	NR	NU	SL	ST	SR	SU	Ш	Ш	ER	EU	ML	WT	WR	MU	TOTAI
TOTAL VOLUMES :	6	1049	424	2	174	902	6	1	12	14	2	0	439	4	149	0	3195
APPROACH %'s :	0.60%	70.45%	28.48%	0.47%	16.02%	83.06%	0.83%	0.09%	42.86%	50.00%	7.14%	0.00%	74.16%	0.68%	25.17%	0.00%	
PEAK HR :		04:15 PM -	05:15 PM														TOTAL
PEAK HR VOL :	5	523	203	S	95	478	S		4	8	1	0	243	m	76	0	1646
PEAK HR FACTOR :	0.625	0.883	0.890	0.750	0.792	0.948	0.375	0.250	0.500	0.667	0.250	0.000	0.868	0.375	0.905 5	0.000	0.957
			2			~~~~	-			~~~	2	-		10:0	0		

& Surveying Services Intersection Turnin

Location: Country Club Dr & Sherwood Way City: Madera Control: Signalized

Data - Totals

National Data

Country Club Dr & Sherwood Way Prepared by National Data & Surveying Services Peak Hour Turning Movement Count

ID:	21-09	0136	-001				C	country	/ Club D	r				Day:	Wed	nesday	/
City:	Made	era					SO	UTH	BOU	IND				Date:	12/1/	2021	
URS	07:3	30 AM	- 08:30	MA (AM	1	542	65	1	618		АМ	7:0	0 AM -	09:00	AM	COU
AK HOI		NC	DNE		NOON	0	0	0	0	0		NOON		NC	NE		NT PEI
PE/	04:1	5 PM	- 05:15	5 PM	РМ	3	478	95	1	604		РМ	4:0	0 PM -	06:00	PM	RIODS
		AM	NOON	РМ		₽	↓	4	6	⇧			РМ	NOON	АМ		
		1	0	11	~	0	0	0	0		0	Ł	76	0	121		
2	ND				~			CON	TROL		0	+	3	0	0	WE	
sod Wa	30U	0	0	0	3	0		Signa	alized		0	F	243	0	174	STI	Sherwa



K.D. ANDERSON TRIP **GENERATION REPORT**



KD Anderson & Associates, Inc.

Transportation Engineers

July 21, 2021

Mr. Russ Orsi, Construction Manager Dutch Bros russ.orsi@dutchbros.com

RE: TRIP GENERATION ASSESSMENT FOR DUTCH BROTHERS RESTAURANT PROPOSED ON COUNTRY CLUB DRIVE, MADERA, CALIFORNIA.

Dear Mr. Orsi:

Thank you for contacting our firm regarding to the Dutch Brothers coffee kiosk proposed in Madera, California. As we are aware the project is a 950 sf restaurant with dual entry drive-thru aisles that would occupy a site on the east side of Country Club Drive between Clark Street and Sherwood Way. The City of Madera Public Works Department has indicated that an initial assessment of project trip generation is needed in order to determine whether the Dutch Brothers restaurant warrants additional analysis, and this letter provides the information requested by the City.

Dutch Brothers Trip Generation Characteristics. The amount of vehicular traffic associated with the project has been estimated on a peak hour basis from two perspectives. First, trip generation rates for coffee related uses that are published in the ITE Trip Generation Manual, 10^{th} Edition were identified and reviewed to determine whether this data is applicable to the proposed Dutch Brothers project. As indicated in Table 1 (attached), rates are available for two coffee related uses with drive-thru lanes.

Code 938 is a *Coffee / Donut Shop with Drive-Thru and No Indoor Seating*. While that description does match the Dutch Brothers concept, all the traffic count data provided by ITE was collected at very small kiosks (100 sf) that generated 10 to 60 peak hour trips. Because these kiosks were so small their "per ksf rate" would greatly exaggerate a forecast for the Dutch Brothers site. Alternatively, Code 937 is a *Coffee / Donut Shop with Drive-Thru* at sites where indoor seating is available. In this case the ITE reported data was collected at sites that ranged from 500 to 5,500 sf, and the resulting trip rates per ksf are likely to understate the trip generation characteristic of the Dutch Brothers project.

As an alternative, we have assembled available trip generation information specific to the Dutch Brothers operation (i.e., >800 sf with dual drive-thru aisles) and determined a.m. and p.m. peak hour trip generation forecasts from that perspective. As noted in Table 1, a 2019 report prepared by another firm included a survey of a similar Dutch Brothers in Stockton, California, and our firm surveyed two Dutch Brothers sites in the Sacramento area in 2020. Average peak hour trip generation rates were created from that data, and these results generally fall between the trip generation rates identified by Code 938 and Code 937.

3853 Taylor Road, Suite G • Loomis, CA 95650 • (916) 660-1555

Mr. Russ Orsi **Dutch Bros** July 21, 2021 Page 2

Trip Generation. As indicated in Table 1, based on the data collected at three similar Dutch Brothers restaurants we expect that the proposed project could generate 133 trips in the a.m. peak hour and 93 trips in the evening peak hour.

Dutch Brothers Pass-by Trips. A share of the trips generated by retail and service-related uses is often drawn from the stream of traffic already passing the business. These "pass-by" trips would be made by customers who simply turn into and out of Dutch Brothers as a part of another trip. The Trip Generation Handbook, 3rd Edition presents pass-by trip rates based on interviews with patrons at various businesses, and this data was reviewed. In this case pass-by rates for two land use categories may be applicable to Dutch Brothers. Pass-by rates are presented for Code 938, and pass-by trips comprised 89% of the p.m. peak hour trips made at the small coffee kiosks included in that study. Similarly, pass-by trip rates are available for Code 934 **Fast-Food**

Restaurant with Drive-Thru, and pass-by trips comprise 49% of the a.m. and 50% of the p.m. trips for that use.

Recognizing that the pass-by trip characteristics of Dutch Brothers restaurants likely fall somewhere between these two published rates, we anticipate that 75% of the trips generated by this Dutch Brothers restaurant will be trips made by customers who are already traveling along Country Club Drive. Thus, 100 a.m. peak hour and 70 p.m. peak hour trips would be pass-by. The remaining 33 a.m. and 23 p.m. peak hour trips would be made by customers for the primary purpose of visiting this Dutch Brothers site.

Thank you for contacting our firm. Please feel free to contact me if you have any questions.

Sincerely,

KD Anderson & Associates, Inc.

Kenneth D. Anderson, P.E.

President

Attachments: Table 1, Site Plan

Madera Dutch Brothers .pro



		Pass-by Rate								75%7			89%		50%	
	Ir I	Rate per ksf		86.42	129.48	76.30	97.40		97.40				83.33	43.48		
	Peak Hou	Trips		70	112	66	83		93	70	23		50%	50%		
ASTS	Md	Outbound	thru	56%	53%	50%	53%	S	50	37	13		50%	50%		
ES / FOREC.		Inbound	th dual drive 1	44%	47%	50%	47%	utch Brother.	43	33	10					
TON RATI		Pass-by Rate	sf model wi					alifornia D		75%7					49%	
TABLE 1 GENERAT		Rate per ksf	fic to 800+	148.10	138.72	131.79	139.54	l Madera, C	139.54			ITE Data	337.04	88.90		00 sf
HER TRIP	Peak Hour	Trips	s Data Speci	120	120	114	118	for Propose	133	100	33		10 to 60			9 samples are 1(to 5,500 sf
UTCH BROT	AM	Outbound	Dutch Brother	47%	52%	48%	49%	Projections	65	49	16		50%	49%		A site 10/3/201 20 oor Dining. All anged from 500
DI		Inbound	1	53%	48%	52%	51%		68	51	17		50%	51%		of Stockton C to, CA 11/3/20 1/3/2020 ru and No Ind ru. Samples ra
		Size (sf)		810	865	865			950	Pass-by	Primary		84	75	46	Group, survey uue, Sacramen oseville, CA 1 with Drive-Th with Drive-Th
		Location		Stockton ¹	Sacramento ²	Roseville ³	Average			Dutch Brothers			ITE Code 93	ITE Code 93'	ITE Code 934	Crane Transportation 4250 El Camino Aver 2348 Sunrise Blvd, R 2348 Sunrise Blvd, R Coffee / Donut Shop Coffee / Donut Shop Fast-Food Restaurant

.

	TES / FO		Inbou	with dual c	44%	47%	50%	47%	Dutch Br	43	33	10					
	TABLE GENERA		Rate per ksf	fic to 800+	148.10	138.72	131.79	139.54	d Madera,	139.54			ITE Data	337.04	88.90		00 sf
TABLE CENERA GENERA GENERA Rate Rate I38.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.72 138.73 138.90 88.90 88.90 88.90	THER TRIP	I Peak Hour	Trips	rs Data Speci	120	120	114	118	for Propose	133	100	33		10 to 60			19 I samples are 1() to 5,500 sf
TABLETABLETHER TRIP GENERA'IPeak HourTripsRateTripsper ksfTripsper ksfTripsper ksfTripsper ksfTripsper ksf120148.10148.10120120148.10120139.54139.54133139.54139.54133139.54139.54133139.54139.54133139.54139.54100100337.04100337.0488.901088.9088.9019191919191919191919191910101010101010101010101010<	UTCH BRO	AN	Outbound	Dutch Brothe	47%	52%	48%	49%	Projections	65	49	16		50%	49%		CA site 10/3/20 020 001 Dining. All anged from 50(
TABLETABLEOUTCH BROTHER TRIP GENERA'AM Peak HourAM Peak HourAM Peak HourMutch Brothers Data Specific to 800+Outch Brothers Data Specific to 800+47%120148.10Apy%1114131.79Projections for Proposed Madera,49%114131.79Apy%114131.79Apy%114131.79Apy%114131.79Apy%114131.79Apy%114131.79Apy%114131.79Apy%114131.79Apy%114131.79Apy%118139.54Apy%118139.54Apy%100337.04Apy%100337.04Apy%100337.04Apy%10088.90Apy%10088.90Apy%10088.90Apy%10088.90Apy%10088.90ApyApy%ApyApyApyApyApyApyApyApyApyApyApy<	D		Inbound	ľ	53%	48%	52%	51%		68	51	17		50%	51%		y of Stockton C nto, CA 11/3/2(11/3/2020 hru and No Ind hru. Samples r 'hru
TABLETABLEDUTCH BROTHER TRIP GENERAInboundOutboundTripsPer ksfInboundOutboundTripsPer ksfS3%47%120148.1053%47%120138.7253%49%114131.7951%49%118139.54S1%49%118139.5451%49%118139.5451%49%118139.5477133.70139.54749%118139.54749%118139.54749%118139.54749%100337.047171633749%100337.0450%50%10 to 60337.0451%49%10 to 60337.0451%49%116 to 60337.0451%49%10 to 60337.0451%49%10 to 60337.0451%49%10 to 60337.04711/3/202011/3/202010.52001911/3/202011/3/202011/3/202011/3/202011/3/202011/3/202011/3/201911/3/201911/3/202011/3/2020105,500 sf11/3/2020105,500 sf100 sf,500 sf11/3/202010101011/3/202010101011/3/2020101010<			Size (sf)		810	865	865			950	Pass-by	Primary		384	375	346	n Group, surve enue, Sacramer Roseville, CA with Drive-T with Drive-T t with Drive-T
TABLEDUTCH BROTHER TRIP GENERADUTCH BROTHER TRIP GENERASizeInboundOutboundTripsRateSizeInboundOutboundTripsPerksfSizeJunch Brothers Data Specific to 800+81053%47%120148.1086552%48%114131.7986552%48%114131.7986552%48%114131.7986552%48%114131.7986552%48%114131.7986552%48%114131.7986552%48%114131.7986552%48%100337.049506865133139.54Primary171633139.5484 ⁴ 50%60636513384 ⁴ 50%1060337.0484 ⁴ 50%51%88.903384 ⁴ 50%1060337.0484 ⁶ 51%49%100.60337.0484 ⁶ 51%88.9033100.6084 ⁶ 51%88.9033100.6084 ⁶ 51%88.90100.60370.485 ⁶ 51%80%100.50088.909560%100.6050%100.6086 ⁶ 50%10000500.686 ⁶ 50%10000 </td <td></td> <td></td> <td>Location</td> <td></td> <td>Stockton¹</td> <td>Sacramento²</td> <td>Roseville³</td> <td>Average</td> <td></td> <td></td> <td>Dutch Brothers</td> <td></td> <td></td> <td>ITE Code 9.</td> <td>ITE Code 9:</td> <td>ITE Code 9:</td> <td>Crane Transportation 4250 El Camino Ave 2348 Sunrise Blvd, J 2348 Sunrise Blvd, J Coffee / Donut Shop Coffee / Donut Shop Fast-Food Restauran</td>			Location		Stockton ¹	Sacramento ²	Roseville ³	Average			Dutch Brothers			ITE Code 9.	ITE Code 9:	ITE Code 9:	Crane Transportation 4250 El Camino Ave 2348 Sunrise Blvd, J 2348 Sunrise Blvd, J Coffee / Donut Shop Coffee / Donut Shop Fast-Food Restauran



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INTERSECTION LOS OPERATIONS

Existing No Project

General Information		Site Information	
Analyst	L Wymer	Intersection	Country Club-Project DW
Agency/Co.		Jurisdiction	City of Madera
Date Performed	1/10/2022	East/West Street	Driveway
Analysis Year	2022	North/South Street	Country Club
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.87
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Madera Dutch Bros		
Lanes			
		<u>1144776</u> 44	





Vehicle Volumes and Adjustments

Approach		Eastb	ound			West	oound	•		North	bound		1	South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	0	2	0
Configuration			LTR				LTR			L	Т	TR		LT		TR
Volume (veh/h)		1	0	4		8	0	12	0	11	541	11	1000	3	609	5
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3				3		
Proportion Time Blocked													Georgeo			152.20
Percent Grade (%)			0				0			1	L					
Right Turn Channelized																
Median Type Storage				Left +	- Thru		n ola ka						1			
Critical and Follow-up H	leadway	ys														
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1	[Γ	1	4.1	T	I
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		
Delay, Queue Length, an	nd Leve	of Se	ervice													
Flow Rate, v (veh/h)			6	T		1	23	1	Ι	13			Ι	3	Ι	T
Capacity, c (veh/h)			516				455			882				938		
v/c Ratio			0.01				0.05			0.01				0.00		
95% Queue Length, Q ₉₅ (veh)			0.0				0.2			0.0			1	0.0		
Control Delay (s/veh)			12.1				13.3			9.1				8.9		
Level of Service (LOS)			В				В			A				A		
Approach Delay (s/veh)		12	2.1			13	3.3	Sectional support		0	.2	L		0	0.1	
Approach LOS			В				В			A CONTRACTOR OF THE OWNER OF THE						

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HCS[™] TWSC Version 7.9.5 Madera Dutch Bros - 1 - AM - Existing.xtw

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General Information		Site Information	
Analyst	L Wymer	Intersection	Country Club-Project DW
Agency/Co.		Jurisdiction	City of Madera
Date Performed	1/10/2022	East/West Street	Driveway
Analysis Year	2022	North/South Street	Country Club
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Madera Dutch Bros		
Lanes			





Vehicle Volumes and Adjustments

Approach	T	Eastb	ound			West	oound		ſ	North	bound		I	South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	0	2	0
Configuration			LTR				LTR			L	Т	TR		LT		TR
Volume (veh/h)		3	1	5		32	0	26	0	2	488	42		7	560	2
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3				3		-
Proportion Time Blocked																
Percent Grade (%)		(0				0									
Right Turn Channelized																
Median Type Storage				Left +	Thru							and the second second	1			
Critical and Follow-up He	eadway	ys							•							
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		
Delay, Queue Length, and	d Leve	l of Se	ervice													
Flow Rate, v (veh/h)			9				61			2			Γ	7		
Capacity, c (veh/h)			470				467			973		e de contre de contre		1002		
v/c Ratio			0.02				0.13			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.1				0.4			0.0				0.0		
Control Delay (s/veh)			12.8				13.9			8.7				8.6		
Level of Service (LOS)			В				В			A			122353	A		
Approach Delay (s/veh)		12	2.8			13	3.9	L		0	.0			0	.2	
Approach LOS			В				В									

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HCS[™] TWSC Version 7.9.5 Madera Dutch Bros - 1 - PM - Existing.xtw

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HCS7 Signalized Intersection Results Summary

Agency Duration Duration, h 0.250 Analyst L Wymer Analysis Date Dec 1, 2021 Area Type CBD Jurisdiction City of Madera Time Period AM Peak Hour PHF 0.87 Urban Street Analysis Year 2022 Analysis Period 1> 7:30 Intersection Country Club-Sherwood File Name Madera Dutch Bros TIA - 2- AM - Existing xus Project Description Madera Dutch Bros on Country Club Madera Dutch Bros TIA - 2- AM - Existing xus SB Demand Information EB WB NB SB Approach Movement L T R L T Demand (v), veh/h 0 2 0 174 0 121 0 494 90 66 542 Signal Information Creen 5.5 81.0 0.4 17.1 0.0 0.0 1 2 3 Offset, s 0 Reference Phase 2 2 174 0 1 2 3 Orfset, s 0 Reference Phase 2 2	
Analysis L Wymer Analysis Date Dec 1, 2021 Area Type CBD Jurisdiction City of Madera Time Period AM Peak Hour PHF 0.87 Urban Street Analysis Year 2022 Analysis Period 1> 7:30 Intersection Country Club-Sherwood File Name Madera Dutch Bros TIA - 2- AM - Existing.xus Project Description Madera Dutch Bros on Country Club- EB WB NB SB Approach Movement L T R L T R L T Demand Information EB WB NB SB SB Approach Movement L T R L T R L T Cycle, s 120.0 Reference Phase 2 0 174 0 121 0 494 90 66 542 Signal Information Green 5.5 81.0 0.4 17.1 0.0 0.0 1 3 Offset, s 0 Reference Phase 2 1 3 3 3 3 3 <td></td>	
Analysis L wyner Analysis Date Dec 1, 2021 Area Type CBD Jurisdiction City of Madera Time Period AM Peak Hour PHF 0.87 Urban Street Analysis Year 2022 Analysis Period 1> 7:30 Intersection Country Club-Sherwood File Name Madera Dutch Bros TIA - 2- AM - Existing.xus Project Description Madera Dutch Bros on Country Club EB WB NB SB Approach Movement L T R L T	
Jurisdiction City of Madera Time Period AM Peak Hour PHF 0.87 Urban Street Analysis Year 2022 Analysis Period 1>7:30 Intersection Country Club-Sherwood File Name Madera Dutch Bros TIA - 2- AM - Existing.xus 1>7:30 Project Description Madera Dutch Bros on Country Club Madera Dutch Bros TIA - 2- AM - Existing.xus SB Demand Information EB WB NB SB Approach Movement L T R	
Analysis Year 2022 Analysis Period 1> 7:30 Intersection Country Club-Sherwood File Name Madera Dutch Bros TIA - 2- AM - Existing.xus 11 Project Description Madera Dutch Bros on Country Club EB WB NB SB Demand Information L T R L <td></td>	
Intersection Country Club-Sherwood File Name Madera Dutch Bros TIA - 2- AM - Existing.xus Project Description Madera Dutch Bros on Country Club Image: Country Club Image: Country Club Image: Country Club Demand Information EB WB NB SB SB Approach Movement L T R L T	
Project Description Madera Dutch Bros on Country Club Demand Information EB WB NB SB Approach Movement L T R L T </td <td></td>	
Demand Information EB WB NB SB Approach Movement L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T Demand (v), veh/h 0 22 0 174 0 121 0 494 90 66 542 Signal Information Image: Signal Concernet and the concernet	
Approach Movement L T R R R R	
Demand (v), veh/h 0 2 0 174 0 121 0 494 90 66 542 Signal Information Cycle, s 120.0 Reference Phase 2 1 <th1< th=""> <th1< th=""> <th1< th=""></th1<></th1<></th1<>	
Signal Information Cycle, s 120.0 Reference Phase 2 Offset, s 0 Reference Point End Uncoordinated No Simult. Gap E/W On Force Mode Fixed Simult. Gap N/S On EBL EBL EBT WBL WBT NBL NBT SBL	
Signal Information Cycle, s 120.0 Reference Phase 2 Offset, s 0 Reference Point End Uncoordinated No Simult. Gap E/W On Green 5.5 81.0 0.4 17.1 0.0 0.0 Force Mode Fixed Simult. Gap N/S On Red 0.0 0.0 0.0 0.0 0.0 5 6 7 Timer Results EBL EBL EBT WBL WBT NBL NBT SBL	
Cycle, s 120.0 Reference Phase 2 Offset, s 0 Reference Point End Uncoordinated No Simult. Gap E/W On Green 5.5 81.0 0.4 17.1 0.0 0.0 Force Mode Fixed Simult. Gap N/S On Red 0.0	
Offset, s 0 Reference Point End Green 5.5 81.0 0.4 17.1 0.0 0.0 Uncoordinated No Simult. Gap E/W On Yellow 4.0 4.0 4.0 0.0 0.0 1 2 3 Force Mode Fixed Simult. Gap N/S On Red 0.0 0.0 0.0 0.0 5 6 7 Timer Results EBL EBT WBL WBT NBL NBT SBL	
Uncoordinated No Simult. Gap E/W On One of Control 0.0 0.0 0.0 0.0 0.0 Force Mode Fixed Simult. Gap N/S On Red 0.0	₽ - 8
Force Mode Fixed Simult. Gap N/S On Red 0.0	8
Timer Results EBL EBT WBL WBT NBL NBT SBL Assigned Phase EBL EBT WBL WBT NBL NBT SBL	No. of Concession, Name
Timer Results EBL EBT WBL WBT NBL NBT SBL	
Assigned Phase	SBT
4 <u>8</u> 5 2 1	6
Case Number 11.0 2.0 4.0 1.1	4.0
Phase Duration, s 21.1 0.0 85.0 9.5	94.5
Change Period, (Y+R c), s 4.0 4.0 4.0 4.0	4.0
Max Allow Headway (<i>MAH</i>), s 3.2 0.0 0.0 3.1	0.0
Queue Clearance Time (g_s) , s 2.2 16.4 3.6	
Green Extension Time (g_e), s0.00.00.00.1Dheep Call Dash shift	0.0
Phase Call Probability 0.07 1.00 Max Out Drebebility 0.92	
0.00 0.00 0.00	
Movement Group Results EB WB NB SB	
Approach Movement	R
Assigned Movement 7 4 14 3 8 18 5 2 12 1 6	16
Adjusted Flow Rate (v), veh/h 0 200 139 0 345 326 76 312	312
Adjusted Saturation Flow Rate (s), veh/h/ln 0 1629 1390 1629 1670 1567 1590 1670	1669
Queue Service Time (gs), s 0.0 10.2 10.3 1.6 6.8	6.8
Cycle Queue Clearance Time (g c), s 0.0 14.4 11.4 0.0 10.2 10.3 1.6 6.8	6.8
Green Ratio (g/C) 0.67 0.67 0.74 0.75	0.75
Capacity (c), veh/h 232 198 1 1127 1057 536 1259	1258
Volume-to-Capacity Ratio (X) 0.864 0.703 0.000 0.306 0.308 0.141 0.248	0.248
Back of Queue (Q), ft/In (50 th percentile) 0 150 102.3 0 89.1 85 11.1 52.2	50.9
Back of Queue (Q), veh/ln (50 th percentile) 0.0 6.0 4.0 0.0 3.5 3.3 0.4 2.0	2.0
Queue Storage Ratio (RQ) (50 th percentile) 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	0.00
Uniform Delay (d1), s/veh 50.3 49.1 0.0 8.0 5.1 4.5	4.5
Incremental Delay (d 2), s/veh 0.0 0.7 0.8 0.0 0.5 Initial Output Delay (d 2), s/veh 0.0 0.7 0.8 0.0 0.5	0.5
Initial Queue Delay (d 3), s/ven 0.0 <	0.0
Control Delay (0), s/ven 54.0 50.8 0.0 8.7 8.8 5.1 4.9 Level of Service (I OS)	4.9
Approach Delay, s/yoh / LOS	Α
Intersection Delay, s/ven / LOS 72.1 E 52.7 D 8.7 A 5.0	Α
16.0 B	
Multimodal Results	
Multimodal ResultsEBWBNBSBPedestrian LOS Score / LOS2.31B2.32D4.07D4.07	

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HCS7 Signalized Intersection Results Summary

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General Inform	nation								1	ntersec	tion Inf	ormati	on		14244	ليه الي
Agency									[Duration	. h	0.25	0		444	
Analyst		L Wymer		Analys	sis Da	te Dec	1, 2	2021	I	Area Tvp	e	Othe	r	- 4		L
Jurisdiction		City of Madera		Time F	Period	PM F	Peal	k Hou	r F	PHF		0.96		*		× 1-
Urban Street				Analys	sis Yea	ar 2022	2		4	Analysis	Period	1>4	15	4 4		
Intersection		Country Club-Sherv	wood	File Na	ame	Mad	era	Dutch	Bros	TIA - 2- I	PM - Ex	isting			* * *	r
Project Descrip	otion	Madera Dutch Bros	on Cou	Intry Clu	ub							ioung./		-		1- 1-
														Sector Sector		
Demand Inform	mation				EB		T		WB			NB			SB	
Ápproach Move	ement			L	Т	R		L	Т	R	L	Т	R	L	T	R
Demand (v), v	/eh/h			4	8	1		243	3	76	8	523	203	96	478	3
							in the second									
Signal Informa	ation				5	1215	9	114		2						
Cycle, s	120.0	Reference Phase	2		2			+2						P	-	4
Offset, s	0	Reference Point	End	Green	1.5	. 0.3	\rightarrow	76.8	22	192	0.0		1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0		4.0	4.0	4.0	0.0					\
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0		0.0	0.0	0.0	0.0		5	6	7	- 8
Timer Results				EBL	-	EBT		WBL		WBT	NBI		NBT	SB		SBT
Assigned Phase	е					4				8	5		2	1		6
Case Number	un and a spectrum of the					12.0				11.0	2.0		4.0	1.1		4.0
Phase Duration	1, S					6.2				23.2	5.5		80.8	9.8		85.1
Change Period	, (Y+R)	c), S				4.0				4.0	4.0		4.0	4.0		4.0
Max Allow Head	Max Allow Headway (MAH), s					3.0				3.1	3.1		0.0	3.1		0.0
Queue Clearan				2.9				18.6	2.5			4.1				
Green Extensio	Green Extension Time (g e), s					0.0				0.6	0.0		0.0	0.2		0.0
Phase Call Pro	Phase Call Probability					0.36				1.00	0.24	ł I		0.96	3	
Max Out Proba	bility					0.00				0.00	0.00			0.00	5	
Movement Gro	un Res	ulte			ED		-1							1		
Approach Move	ement	Juito			ED			1	VVB			NB			SB	
Assigned Move	ment			L 7	1	R			1	R	L		R	L	Т	R
Adjusted Flow	Rate (v) veh/h			4	14		3	8	18	5	2	12	1	6	16
Adjusted Satura	ation Flo	W Rate (s) veh/h/l	n		14		-		256	79	8	399	357	100	251	250
Queue Service	Time ((γ_{e}) s			0.0				1011	1546	1810	1856	1653	1767	1856	1851
Cycle Queue C	learance	$e Time (a_c) s$			0.9		-		10.0	5.4	0.5	11.8	11.9	2.1	6.1	6.1
Green Ratio (o	V(C)	o mino (g c), o			0.9	,			10.0	5.4	0.5	11.8	11.9	2.1	6.1	6.1
Capacity (c), y	/eh/h				33				200	0.10	0.01	0.64	0.64	0.70	0.68	0.68
Volume-to-Cap	acity Ra	tio (X)			0.40		+-		290	240	22	1187	1058	525	1254	1251
Back of Queue	(Q), ft/	In (50 th percentile)			10.40				101 1	0.319	0.380	0.336	0.338	0.191	0.200	0.200
Back of Queue	(Q), ve	h/ln (50 th percenti			0.4				76	55.1	6.8	119.1	107.9	17.9	58.7	57.2
Queue Storage	Ratio (RQ) (50 th percent			0.4				7.0	2.1	0.3	4.7	4.2	0.7	2.3	2.3
Uniform Delay	(d_1) , s	/veh	ine)		58.3				0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Incremental De	$av(d_2)$) s/veh			20				49.3	44.6	58.8	9.9	9.9	6.5	7.3	7.3
Initial Queue De	elav (d	3) s/veh			2.9				3.5	0.3	4.0	0.8	0.9	0.1	0.4	0.4
Control Delay (d) s/ve	h			61.0				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Level of Service	$\frac{1}{100}$				01.2		-		52.8	44.9	62.8	10.7	10.8	6.5	7.6	7.6
Approach Delay s/veh / LOS			01.0					D	D	E	В	В	A	A	Α	
Intersection Delay, s/veh / LOS			61.2		E		50.9		D	11.3	3	В	7.5		Α	
intersection Delay, s/ven / LOS						18.1	an a						B			
Multimodal Re	sults				ED				14/0							
Pedestrian LOS	Score	/LOS		2 21	EB	P		2.20	VVB	P	1.00	NB	-		SB	
Bicycle LOS So	ore /IC	DS		0.51		Δ		1.04		B	1.88		B	1.65	>	В
				0.51		A		1.04		A	1.12		A	0.98	3	A

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INTERSECTION LOS OPERATIONS

Existing Plus Approved Project (EPAP) No Project



General Information		Site Information	
Analyst	L Wymer	Intersection	Country Club-Project DW
Agency/Co.		Jurisdiction	City of Madera
Date Performed	1/10/2022	East/West Street	Driveway
Analysis Year	2022	North/South Street	Country Club
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.87
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Madera Dutch Bros		
Lanes			





Vehicle Volumes and Adjustments

Approach		Eastb	ound			West	bound		l	North	bound			South	bound		
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R	
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	0	2	0	
Configuration			LTR				LTR			L	Т	TR		LT		TR	
Volume (veh/h)		1	0	4		8	0	12	0	11	558	11		3	635	5	
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3				3			
Proportion Time Blocked																	
Percent Grade (%)			0			1	0							TRANSPORT DUCK			
Right Turn Channelized																	
Median Type Storage				Left +	Thru				<u> </u>				1				
Critical and Follow-up H	leadwa	ys															
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9	I	4.1				4.1	[T	
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16	-			4.16			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23			
Delay, Queue Length, an	nd Leve	l of Se	ervice														
Flow Rate, v (veh/h)			6			T	23			13				3		T	
Capacity, c (veh/h)			501				444	20.55		859				922			
v/c Ratio			0.01				0.05			0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			0.0				0.2			0.0				0.0			
Control Delay (s/veh)			12.3				13.6			9.3				8.9			
Level of Service (LOS)			В				В			A				A			
Approach Delay (s/veh)		12	2.3			1:	3.6			0	.2		0.1				
Approach LOS			В			an a	В			ND							

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	Site Information	
L Wymer	Intersection	Country Club-Project DW
	Jurisdiction	City of Madera
1/10/2022	East/West Street	Driveway
2022	North/South Street	Country Club
PM Peak Hour	Peak Hour Factor	0.95
North-South	Analysis Time Period (hrs)	0.25
Madera Dutch Bros		
	L Wymer 1/10/2022 2022 PM Peak Hour North-South Madera Dutch Bros	Site InformationL WymerIntersectionJurisdictionJurisdiction1/10/2022East/West Street2022North/South StreetPM Peak HourPeak Hour FactorNorth-SouthAnalysis Time Period (hrs)Madera Dutch Bros.

Lanes



Vehicle Volumes and Adjustments

Approach	1	Eastb	ound			West	oound		Γ	North	bound		1	South	bound		
Movement	U		Т	R	U	1	Т	P		I	т	D	11	Journ			
Priority		10	. 11	12		7	8	<u>к</u>	111	1	2	R 2			1	R	
Number of Lanes		0	1	0		0	1	0	10		2	5	40	4	5	6	
Configuration		-	ITP	0		0		0	0		2	0	0	0	2	0	
Volume (veh/h)		2	1	5		22		26	0		1	IR				TR	
Percent Heavy Vehicles (%)		2	2	2		32	0	20	0	2	520	42		1	583	2	
Proportion Time Blocked			5	5		3	3	3	3	- 3				3			
Percent Grade (%)									-								
Pight Turn Channelized			0				0						<u> </u>				
Madian Travel Sterror																	
Median Type Storage				Left +	- Thru								1				
Critical and Follow-up He	adway	ys															
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9	1	4.1			I	4.1			
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23			
Delay, Queue Length, and	Leve	of Se	ervice				L								L		
Flow Rate, v (veh/h)			9				61			2			T	7		T	
Capacity, c (veh/h)			455				448		1.582	953				973			
v/c Ratio			0.02				0.14			0.00				0.01			
95% Queue Length, Q ₉₅ (veh)			0.1				0.5			0.0				0.0			
Control Delay (s/veh)			13.1				14.3			8.8				87			
Level of Service (LOS)			В				В			A							
Approach Delay (s/veh)		13	3.1			14	4.3			0	0	I	02				
Approach LOS			В				B										

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HCS7 Signalized Intersection Results Summary

Agency Interference matrix Interference matrix <thi< th=""><th>General Inform</th><th>nation</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>1</th><th>Into</th><th>read</th><th>tion Inf</th><th>o mo o fil</th><th></th><th></th><th></th><th></th></thi<>	General Inform	nation								1	Into	read	tion Inf	o mo o fil				
Analysis L. Wymer Analysis Date Dec 1, 2021 Area Type CB30 Jurisdiction City of Madora Time Period AM Peak Lour PHF 0.87 0.87 Jurisdiction Country Citle-Sharwood File Name Madera Dutch Bros TIA - 2-AM - EPAP-xus December 2000 File Name Madera Dutch Bros TIA - 2-AM - EPAP-xus Demand Information EB VB NB SB Approach Movement L T R L T R L T R L T R L T R L SB SB SB Signal Information Cycle, 8 120.0 Reference Phase 2 O 124 O 0.0 0.0 0.0 0.0 File Name File Name File Name File Name File Name File Name NB SB S SB SB <td>Agency</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Dur</td> <td>ersec</td> <td></td> <td>ormatio</td> <td>on</td> <td>- 1</td> <td>411</td> <td>44.14</td>	Agency										Dur	ersec		ormatio	on	- 1	411	44.14
Jurisdian City of Medera Time Period AMP Peak Hour PHFF D.67 Ubins Street Country Club-Sherwood Analysis Ver 2022 Analysis Period 1> 7.3 Interaccion Country Club-Sherwood Madera Dutch Bros TIA - 2. AM - EPA.P.Xus Vision Sirvet NB SB Project Description Madera Dutch Bros on Country Club EB WB NB SB Approach Movement L T R L T R L T R SB VIsion Sirvet Vi	Analyst		I Wymer		Analy		to Do	0.1	2024		Dur	ation,	, n	0.250)			2
Urban Struet Unity of medical Inite Pail Pail <td>Jurisdiction</td> <td></td> <td>City of Madera</td> <td></td> <td>Time</td> <td>SIS Da</td> <td></td> <td></td> <td>ZUZI</td> <td></td> <td>Area</td> <td>а тур</td> <td>е</td> <td>CBD</td> <td></td> <td>_ +</td> <td></td> <td>×</td>	Jurisdiction		City of Madera		Time	SIS Da			ZUZI		Area	а тур	е	CBD		_ +		×
Intersection Country Club-Sherwood Fiel Name Madera Dutch Bros TIA - 2: AM - EPAP Xus Project Description Madera Dutch Bros on Country Club Madera Dutch Bros TIA - 2: AM - EPAP Xus NB State	Urban Street		only of Madera		Anoly			1 Pe	ak Hou	<u>ır</u>	PH	-		0.87		_ *		****
Project Description Mader Ducks Brow on Courty Club Project Description NB SB Demand Information L T R R R R R R R R R	Intersection	Ph. 41	Country Club-Shon	wood	File N	sis rea	ar 202		- D. (.)		Ana	alysis	Period	1> 7:	30	4		1
Demand Information EB WB NB SB Approach Movement L T R L T	Project Descrip	tion	Madera Dutch Bros		Intry Ch	uh	Ivia	laera	a Dutcr	Bros	5 HA	- 2- 1	AM - EF	AP.xus			517	
Demand Information L T R	3		madera Bateri Bros			ub											1 4 1 4 4	7 1
Approach Movement L T R	Demand Infor	nation				EF	3			W	B			NB			CD	
Demand (v), veh/h 0 2 0 174 0 18 0 5 18 0 68 665 1 Signal Information Cycle, s 120.0 Reference Phase 2 0 174 0 124 0 508 90 69 665 1 Oriset, s 0 Reference Point End Vellow 4.0 4.0 6.0 0.0	Approach Move	ement			L	TT		R		Тт	. Т	R	1					
Signal Information Cycle, s 120.0 Reference Point <	Demand (v), v	/eh/h			0	2		0	174			124	0	508	90	60	FGE	R
Signal Information Cycle, s 120.0 Reference Phase 2 Offset, s 0 Reference Phase Ed. Green Acc 80.9 0.4 47.1 0.0 0.0 Innocordinated No Simult Gap I/N On Red 80.9 0.4 47.1 0.0 0.0 Timer Results EBL EBL EBL WBL WBT NBL NBT SBT Assigned Phase 4 8 5 2 1 6 Case Number 12.0 11.0 2.0 4.0 4.0 4.0 4.0 Phase Duration, s 4.4 21.1 0.0 84.9 96.5 94.5 Charge Period, (Y#R,), s 3.0 3.2 0.0 0.0 1.0 0.0 Max Allow Headway (MAH), s 0.07 1.00 0.0 0.0 0.0 0.0 0.0 0.0 Max Out Probability 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td><td></td><td>12.1</td><td></td><td>000</td><td>30</td><td>09</td><td>505</td><td></td></td<>										1		12.1		000	30	09	505	
Cycle, s 120.0 Reference Phase 2 Offset, s 0 Reference Point Green 5.6 80.9 0.4 17.1 0.0 0.0 Force Mode Fixed Simult. Gap E/W On Velow 4.0 4.0 4.0 4.0 6.0 0.0 Timer Results EBL EBL EBL EBL WBL WBT NBL NBT SBL SBT Assigned Phase 4 6 5 2 1 6 Case Number 12.0 11.0 2.0 4.0 1.1 4.0 Change Period, (Y-R_r), s 4.4 21.1 0.0 84.9 9.6 94.5 Change Period, (Y-R_r), s 4.4 2.1 0.0 0.0 0.0 0.1 0.0 Creen Extension Time (g_r), s 0.0 0.7 0.0 0.0 0.1 0.0 Green Extension Time (g_r), s 0.0 0.0 0.0 0.0 0.0 Max Out Probability 0.0	Signal Informa	ation				215		5	2 5	4								
Oriset, s O Reference Poil End Green 5.6 80.9 D.4 17.1 0.0 0.0 Force Mode Fixed Simult. Gap EW On Red 0.0 1.1 4.0	Cycle, s	120.0	Reference Phase	2				17		1					2	V		
Dirocondinated No Simult. Gap EW On Red 0.0 6.0 4.0 6.0 0.0 <td>Offset, s</td> <td>0</td> <td>Reference Point</td> <td>End</td> <td>Green</td> <td>5.6</td> <td>80</td> <td>.9</td> <td>0.4</td> <td>17</td> <td>1</td> <td>0.0</td> <td>0.0</td> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td>	Offset, s	0	Reference Point	End	Green	5.6	80	.9	0.4	17	1	0.0	0.0		1	2	3	4
Perce Mode Fixed Simult Gap N/S On Red 0.0	Uncoordinated	No	Simult. Gap E/W	On	Yellow	/ 4.0	4.0)	4.0	4.0)	0.0	0.0	R				\rightarrow
Timer Results EBL EBT WBL WBT NBL NBT SBL SBT Assigned Phase 4 8 5 2 1 6 Case Number 12.0 11.0 2.0 4.0 1.1 4.0 Phase Duration, s 4.0	Force Mode	Fixed Simult. Gap N/S On		On	Red	0.0	0.0)	0.0	0.0		0.0	0.0		5	6	7	8
Interview EBL EBL EBT WBL WBL NBL NBT SBL SBT Case Number 12.0 11.0 2.0 4.0 1.1 4.0 Phase Duration, s 4.44 21.1 0.0 84.9 9.6 94.5 Change Period (, Y+R c), s 4.0 <	Timor Posulto	imer Results											-					2-Diversity
August ratio 4 8 5 2 1 6 Case Number 12.0 11.0 2.0 4.0 1.1 4.0 Phase Duration, s 4.4 21.1 0.0 84.9 9.6 94.5 Change Period, (Y+R s), s 4.0 7.7 0.0 0.0 0.0 7.7 0.00 0.00 7.7 0.00 0.00 7.7 7.1 7.1 7.1 7.1 7.1 7.1<	Assigned Phase	۵			EBI		EBT	-	WBI		WE	3T	NB	-	NBT	SB	_	SBT
Description 12.0 11.0 2.0 4.0 1.1 4.0 Phase Duration, s 4.4 21.1 0.0 84.3 9.6 94.5 Change Period, $(Y+R_c)$, s 4.0 <td>Case Number</td> <td>6</td> <td></td> <td></td> <td></td> <td></td> <td>4</td> <td>_</td> <td></td> <td></td> <td>8</td> <td></td> <td>5</td> <td></td> <td>2</td> <td>1</td> <td></td> <td>6</td>	Case Number	6					4	_			8		5		2	1		6
Attach 21.1 0.0 84.9 9.6 94.5 Change Period, (Y+R c), s 4.0 0.0	Phase Duration	2					12.0	-			11.	.0	2.0		4.0	1.1		4.0
Data Solution 1. Note f_{13}^{N} 4.0 4.0 <td>Change Period</td> <td>(V+P)</td> <td></td> <td></td> <td></td> <td></td> <td>4.4</td> <td>_</td> <td></td> <td></td> <td>21.</td> <td>.1</td> <td>0.0</td> <td></td> <td>84.9</td> <td>9.6</td> <td></td> <td>94.5</td>	Change Period	(V+P)					4.4	_			21.	.1	0.0		84.9	9.6		94.5
Additional formation from (f, f, h,	Max Allow Hear	dway (A	(AH) e				4.0	-			4.(0	4.0		4.0	4.0		4.0
Crean Extension Time (g s), s 2.2 16.4 3.7 3.7 Green Extension Time (g s), s 0.0 0.7 0.0 0.0 0.1 0.0 Max Out Probability 0.07 1.00	Queue Clearan				3.0				3.2	2	0.0		0.0	3.1		0.0		
Phase Call Probability 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Max Out Probability 0.00 0.00 0.00 0.00 0.00 0.00 Movement Group Results EB WB NB SB Approach Movement L T R	Green Extensio	n Time	$(g_s), s$				2.2	_			16.	.4				3.7		
Instruction I.00 I.00 I.00 I.00 I.00 I.00 I.00 IIII IIIIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Phase Call Pro	Phase Call Probability					0.0	_			0.1	7	0.0		0.0	0.1		0.0
Movement Group Results EB WB NB SB Approach Movement L T R R R R R R R R R R R R R R <td< td=""><td>Max Out Proba</td><td colspan="4">Aax Out Probability</td><td></td><td>0.07</td><td>_</td><td></td><td></td><td>1.0</td><td>00</td><td></td><td></td><td></td><td>0.93</td><td>3</td><td></td></td<>	Max Out Proba	Aax Out Probability					0.07	_			1.0	00				0.93	3	
Movement Group Results L T R <td></td> <td>onicy</td> <td></td> <td>10100</td> <td></td> <td></td> <td>0.00</td> <td></td> <td>The second</td> <td>-</td> <td>0.0</td> <td>00</td> <td></td> <td></td> <td></td> <td>0.00</td> <td>)</td> <td></td>		onicy		10100			0.00		The second	-	0.0	00				0.00)	
Approach Movement L T R	Movement Gro	oup Res	ults			EB				WB				NB			SB	
Assigned Movement 7 4 14 3 8 18 5 2 12 1 6 16 Adjusted Flow Rate (v), veh/h 0 0 1629 1300 1629 1670 1570 1590 1670 1669 Adjusted Saturation Flow Rate (s), veh/h/In 0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Cycle Queue Clearance Time (g $_{0}$), s 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Green Ratio (g/C) 0.14 0.14 0.67 0.67 0.74 0.75 0.75 Capacity (c), veh/h 2232 198 1 1126 1058 529 1258 Volume-to-Capacity Ratio (X) 0.000 0.863 0.711 0.000 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q), wh/ln (95 th percentile) 0.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00<	Approach Move	ement			L	Т	R		L	Т		R	L	Т	R	L	Т	R
Adjusted Flow Rate (\u03bb), veh/h 0 200 143 0 353 334 79 325 325 Adjusted Saturation Flow Rate (s), veh/h/ln 0 1629 1390 1629 1670 1570 1570 1570 1690 1670 1669 Queue Service Time (g s), s 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 7.1 Green Ratio (g/C) 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 7.1 Green Ratio (g/C) 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 7.1 Green Ratio (g/C) 0.01 0.14 0.14 0.14 0.67 0.67 0.74 0.75 0.75 Capacity (c), veh/h 0 0.00 0.0863 0.721 0.00 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q), tr/ln (95 th percentile) 0.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Assigned Move	ment			7	4	14	ł	3	8		18	5	2	12	1	6	16
Adjusted Saturation Flow Rate (s), veh/h/ln 0 1629 1390 1629 1670 1570 1590 1670 1669 Queue Service Time (g s), s 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Cycle Queue Clearance Time (g c), s 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Green Ratio (g/C) 0.14 0.14 0.14 0.67 0.67 0.67 0.74 0.75 0.75 Capacity (c), veh/h 0.000 0.863 0.721 0.000 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q), ft/ln (95 th percentile) 0.00 0.00 0.863 0.71 0.00 0.0	Adjusted Flow I	Rate (v), veh/h			0				200	1	143	0	353	334	79	325	325
Clucie Service lime $(g \circ)$, s 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Cycle Queue Clearance Time $(g \circ)$, s 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Green Ratio (g/C) 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Green Ratio (g/C) 0.0 0.14 0.14 0.67 0.67 0.74 0.75 0.75 Capacity (c) , veh/h 0.000 0.863 0.721 0.00 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q) , twh/ln (95 th percentile) 0.0 250.4 189.4 0 165.2 157.6 21 98.8 96.4 Back of Queue (Q) , weh/ln (95 th percentile) 0.0 0.0 10.0 7.4 0.0 6.5 6.2 0.8 3.9 3.9 Queue Storage Ratio (RQ) (95 th percentile) 0.00 0.0 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00	Adjusted Satura	ation Flo	w Rate (s), veh/h/l	n		0				1629) 1:	390	1629	1670	1570	1590	1670	1669
Cycle Gueue Clearance Time ($g \circ$), s 0.0 14.4 11.8 0.0 10.5 10.6 1.7 7.1 7.1 Green Ratio (g/C) 0.14 0.14 0.14 0.67 0.67 0.74 0.75 0.75 Capacity (c), veh/h 232 198 1 1126 1058 529 1258 0.258 Volume-to-Capacity Ratio (X) 0.000 0.863 0.721 0.000 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q), ft/ln (95 th percentile) 0.00 10.0 7.4 0.0 6.5 6.2 0.8 3.9 3.9 Queue Storage Ratio (RQ) (95 th percentile) 0.00	Queue Service	lime (g	() s), S			0.0				14.4	. 1	1.8	0.0	10.5	10.6	1.7	7.1	7.1
Older Ratio (g/c) 0 0.14 0.14 0.67 0.74 0.75 0.75 Capacity (c), veh/h 232 198 1 1126 1058 529 1259 1258 Volume-to-Capacity Ratio (X) 0.000 0.863 0.721 0.000 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q), tr/ln (95 th percentile) 0 250.4 189.4 0 165.2 157.6 21 98.8 96.4 Back of Queue (Q), veh/ln (95 th percentile) 0.0 10.0 7.4 0.0 6.5 6.2 0.8 3.9 3.9 Queue Storage Ratio (RQ) (95 th percentile) 0.00 0.0 0.0 0.0<	Groop Ratio (learance	e lime (g c), s			0.0				14.4	1	1.8	0.0	10.5	10.6	1.7	7.1	7.1
Capacity (c), verin C 232 198 1 1126 1058 529 1259 1258 Volume-to-Capacity Ratio (X) 0.000 0.863 0.721 0.000 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q), ft/ln (95 th percentile) 0 250.4 189.4 0 165.2 157.6 21 98.8 96.4 Back of Queue (Q), veh/ln (95 th percentile) 0.0 10.0 7.4 0.0 6.5 6.2 0.8 3.9 3.9 Queue Storage Ratio (RQ) (95 th percentile) 0.00	Green Kallo (g	/C)								0.14	0).14		0.67	0.67	0.74	0.75	0.75
Volumeto-Gapadity Ratio (X) 0 0.000 0.863 0.721 0.000 0.314 0.316 0.150 0.258 0.258 Back of Queue (Q), ft/ln (95 th percentile) 0 250.4 189.4 0 165.2 157.6 21 98.8 96.4 Back of Queue (Q), veh/ln (95 th percentile) 0.0 10.0 7.4 0.0 6.5 6.2 0.8 3.9 3.9 Queue Storage Ratio (RQ) (95 th percentile) 0.00 0.0	Volume to Con	en/n	41- ()<)							232	1	198	1	1126	1058	529	1259	1258
Date of Queue (Q), tolin (95 th percentile) 0 250.4 189.4 0 165.2 157.6 21 98.8 96.4 Back of Queue (Q), veh/ln (95 th percentile) 0.0 10.0 7.4 0.0 6.5 6.2 0.8 3.9 3.9 Queue Storage Ratio (RQ) (95 th percentile) 0.00	Back of Oueuo		lo(X)			0.000		_		0.86	3 0.	.721	0.000	0.314	0.316	0.150	0.258	0.258
Date of Gadede (G), ventilit (95 th percentile) 0.0 10.0 7.4 0.0 6.5 6.2 0.8 3.9 3.9 Queue Storage Ratio (RQ) (95 th percentile) 0.00 0.	Back of Queue	(Q), W	h/lp (05 th percentile)			0		_		250.4	4 18	89.4	0	165.2	157.6	21	98.8	96.4
uniform Delay (d 1), s/veh 0.00	Queue Storage	Ratio (PO) (05 th percenti			0.0		_		10.0	17	7.4	0.0	6.5	6.2	0.8	3.9	3.9
Incremental Delay (d 2), s/veh 0.0 50.3 49.2 0.0 8.1 8.1 5.1 4.5 4.5 Incremental Delay (d 2), s/veh 0.0 3.7 1.9 0.0 0.7 0.8 0.0 0.5 0.5 Initial Queue Delay (d 3), s/veh 0.0	Uniform Delay		veb	lie)		0.00		_		0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Queue Delay (d 2), siven 0.0 0.0 3.7 1.9 0.0 0.7 0.8 0.0 0.5 0.5 Initial Queue Delay (d 3), siveh 0.0	Incremental De	Driform Delay (d1), s/veh				0.0		-		50.3	4	9.2	0.0	8.1	8.1	5.1	4.5	4.5
Initial activity (u s), s/ven 0.0	Initial Queue De	Initial Queue Delay (d 2), s/ven				0.0		-		3.7	+1	1.9	0.0	0.7	0.8	0.0	0.5	0.5
Level of Service (LOS) D D D A A A A Approach Delay, s/veh / LOS 72.1 E 52.8 D 8.8 A 5.0 A Intersection Delay, s/veh / LOS 72.1 E 52.8 D 8.8 A 5.0 A Intersection Delay, s/veh / LOS 72.1 E 52.8 D 8.8 A 5.0 A Multimodal Results EB WB NB SB SB Pedestrian LOS Score / LOS 2.31 B 2.32 B 1.87 B 1.62 B Bicycle LOS Score / LOS 0.49 A 1.05 A 1.	Control Delay (d) s/veh					0.0		_		0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Approach Delay, s/veh / LOS 72.1 E 52.8 D 8.8 A B B A A	Level of Service (LOS)							_		54.0	5	1.0	0.0	8.8	8.9	5.2	5.0	5.0
Intersection Delay, s/veh / LOS 72.1 E 52.8 D 8.8 A 5.0 A Intersection Delay, s/veh / LOS 15.9 B B B B B B Multimodal Results EB WB NB SB SB Pedestrian LOS Score / LOS 2.31 B 2.32 B 1.87 B 1.62 B Bicycle LOS Score / LOS 0.49 A 1.05 A 1.0	Approach Delay s/veh /1 09				70.4					D		D		A	Α	Α	A	Α
15.9 B Multimodal Results EB WB NB SB Pedestrian LOS Score / LOS 2.31 B 2.32 B 1.87 B 1.62 B Bicycle LOS Score / LOS 0.49 A 1.05 A	Intersection Delay	Intersection Delay, s/veh / LOS			12.1		E	45	52.8		D		8.8		A	5.0		Α
Multimodal ResultsEBWBNBSBPedestrian LOS Score / LOS 2.31 B 2.32 B 1.87 B 1.62 BBicycle LOS Score / LOS 0.49 A 1.05 A 1.05 A 1.05 A 1.05 A 1.05 A 1.05	Little coolion Del	intersection Delay, s/ven / LOS				-		15.	9							B		
Pedestrian LOS Score / LOS2.31B2.32B1.87B1.62BBicycle LOS Score / LOS0.49A1.05A1.05A1.05A1.05	Multimodal Re	Multimodal Results				FB								ND			05	
Bicycle LOS Score / LOS 0.49 A 1.05 A 1.07 B 1.62 B	Pedestrian LOS	Score	LOS		2.31	T	B		2 32		R		1 97		P	1.00	SB	D
	Bicycle LOS Sc	ore / LC	S		0.49		A	-	1.05		Δ		1.07		Δ	1.02		B

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HCS[™] Streets Version 7.9.5

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HCS7 Signalized Intersection Results Summary

General Inform	nation												n			
Agency	lation									Intersec	tion Inf	ormatio	on			da la
Analyst								0001		Duration	, h	0.250)			
lurisdiction		City of Madara	and the second	Analys	sis Da	ate D	ec 1	, 2021		Area Typ	De	CBD		4 1		x 2
Urban Street		City of Madera	ASSISTANTIAN AMULTING THE REAL	1 ime i			M Pe	eak Hou	ir I	PHF		0.96				**
Intersection		Country Club Shor	wood	Analys	sis ye	ar 20	022			Analysis	Period	1> 4:	15	ja la		4
Project Descrip	tion	Modoro Dutoh Brog	wood	File N	ame	IVI	lader	ra Dutch	n Bros	HA - 2-	PM - EF	PAP.xus			517	
T Toject Descrip		Madera Dutch Bros	on Col	intry Cil	ap										141144	11
Demand Inform	nation				EB	2						ND			0.0	
Approach Move	ement				Тт	. T	R			,					SB	
Demand (v), v	eh/h			4	8		1	2/3	2	90		EE4	R 202	L	407	R
							1	240	1 3	00	0	551	203	100	497	3
Signal Informa	ation				T		Щ.	L.L.		R						
Cycle, s	120.0	Reference Phase	2	1	7		2 4			3			2	t		~
Offset, s	0	Reference Point	End	Groon	15			74.0	122				1	2	3	Y 4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4	1.4	4.0	4.0	21.	0.0					4
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0	0.0	0.0	0.0	0.0	0.0		5	6	7	8
Timer Results				EBI	L	EB	Т	WB	L	WBT	NB	L	NBT	SB		SBT
Assigned Phase	е					4				8	5		2	1		6
Case Number						12.0	0			11.0	2.0		4.0	1.1		4.0
Phase Duration	I, S					6.2	2			25.1	5.5		78.9	9.8		83.3
Change Period,	, (Y+R a	c), S				4.0)			4.0	4.0		4.0	4.0		4.0
Max Allow Head	dway (A	<i>IAH</i>), s				3.0)			3.1	3.1		0.0	3.1		0.0
Queue Clearan				3.0)			20.5	2.6			4.6				
Green Extensio	Green Extension Time (g_e), s					0.0)			0.6	0.0		0.0	0.2		0.0
Phase Call Pro	Phase Call Probability					0.36	6			1.00	0.24	4		0.97	7	
Max Out Proba	bility					0.00	0			0.00	0.00)		0.00)	
Movement Gro	oup Res	ults			EB	3			WB			NB			SB	
Approach Move	ement			L	Т		R	L	Т	R		Т	R			P
Assigned Move	ment			7	4	1	14	3	8	18	5	2	12	1	6	16
Adjusted Flow F	Rate (v), veh/h			14				256	83	8	414	372	104	261	260
Adjusted Satura	ation Flo	w Rate (s), veh/h/l	n		165	7			1630	1392	1629	1670	1494	1590	1670	1666
Queue Service	Time (g)s), S			1.0				18.5	6.3	0.6	14.8	14.9	2.6	7.5	7.5
Cycle Queue C	learance	e Time (g c), s			1.0				18.5	6.3	0.6	14.8	14.9	2.6	7.5	7.5
Green Ratio (g	/C)				0.02	2			0.18	0.18	0.01	0.62	0.62	0.69	0.66	0.66
Capacity (c), v	/eh/h				30				286	245	20	1043	933	444	1103	1100
Volume-to-Capa	acity Ra	tio(X)			0.45	0			0.895	0.341	0.422	0.397	0.398	0.234	0.236	0.236
Back of Queue	(Q), ft/	In (50 th percentile)			10.8	3			191.5	55.3	6.9	137.8	124.7	20.2	67.2	65.5
Back of Queue	(Q), ve	eh/In (50 th percenti	le)		0.4				7.7	2.2	0.3	5.4	4.9	0.8	2.6	2.6
Queue Storage	Ratio (RQ) (50 th percent	tile)		0.00)			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay ((d1), s/	veh			58.3	3			48.4	43.4	58.9	11.3	11.3	7.6	8.2	8.2
Incremental De	lay (d 2), s/veh			3.9				4.0	0.3	5.2	1.1	1.3	0.1	0.5	0.5
Initial Queue Delay (d 3), s/veh					0.0				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh					62.2	2			52.3	43.7	64.1	12.4	12.5	7.7	8.7	8.7
Level of Service (LOS)				E				D	D	E	В	В	Α	A	A	
Approach Delay, s/veh / LOS			62.2	2	Е		50.2	2	D	13.0		В	8.5		A	
Intersection Delay, s/veh / LOS						18	.9						B			
Mariation 1 1 1					-											
Redactrian L OC	Multimodal Results				EB	5			WB			NB			SB	
Biovolo LOS Co	score	LUS		2.31		B		2.32		В	1.88	3	В	1.65	5	В
Bicycle LUS SC	sycle LOS Score / LOS			0.51		A		1.05	5	Α	1.14	ł	A	1.00		Α

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INTERSECTION LOS OPERATIONS

Cumulative (2042) No Project



General Information		Site Information	
Analyst	L Wymer	Intersection	Country Club-Project DW
Agency/Co.		Jurisdiction	City of Madera
Date Performed	1/10/2022	East/West Street	Driveway
Analysis Year	2042	North/South Street	Country Club
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.87
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Madera Dutch Bros		

Lanes





Vehicle Volumes and Adjustments

Approach		Eastb	ound			West	bound			North	bound		T	South	bound				
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R			
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6			
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0			
Configuration			LTR				LTR			L	Т	TR		L	T	TR			
Volume (veh/h)		1	0	4		8	0	12	0	11	646	11	0	3	644	5			
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3					
Proportion Time Blocked																			
Percent Grade (%)		(0				0												
Right Turn Channelized																			
Median Type Storage				Left +	Thru		tentifi demonstratione de sere						1						
Critical and Follow-up He	adway	ys																	
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1					
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16					
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2					
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23					
Delay, Queue Length, and	Leve	of Se	ervice																
Flow Rate, v (veh/h)			6				23			13				3					
Capacity, c (veh/h)			491				400			851				845					
v/c Ratio	Contractor of the contractor		0.01				0.06			0.01				0.00					
95% Queue Length, Q ₉₅ (veh)			0.0				0.2			0.0				0.0		ANAL SA			
Control Delay (s/veh)			12.4				14.5			9.3				9.3					
Level of Service (LOS)			В				В			Α				A					
Approach Delay (s/veh)		12	2.4			14	4.5			0	.2			0.0					
Approach LOS		I	В				В												

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General Information		Site Information	
Analyst	L Wymer	Intersection	Country Club-Project DW
Agency/Co.		Jurisdiction	City of Madera
Date Performed	1/10/2022	East/West Street	Driveway
Analysis Year	2042	North/South Street	Country Club
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Madera Dutch Bros		
Lanes			





Vehicle Volumes and Adjustments

Approach		Eastb	ound			West	bound			North	bound		<u> </u>	South	bound	
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0
Configuration			LTR			1	LTR			L	Т	TR		L	T	TR
Volume (veh/h)		3	1	5		32	0	26	0	2	613	42	0	7	825	2
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3		
Proportion Time Blocked																
Percent Grade (%)		(0				0									
Right Turn Channelized																
Median Type Storage				Left +	Thru						Real Providence		1			
Critical and Follow-up He	adway	ys														
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		
Delay, Queue Length, and	l Level	of Se	ervice													
Flow Rate, v (veh/h)			9				61			2				7		
Capacity, c (veh/h)			346				378			764				894		
v/c Ratio			0.03				0.16			0.00				0.01		
95% Queue Length, Q ₉₅ (veh)			0.1				0.6			0.0				0.0		
Control Delay (s/veh)			15.7				16.4			9.7				9.1		
Level of Service (LOS)			С				С			Α				A		
Approach Delay (s/veh)		15	5.7			16	5.4	Lannessee		0.	.0			0	.1	
Approach LOS		(2				c									

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HCS7 Signalized Intersection Results Summary

AgencyLWymerArAnalystLWymerArJurisdictionCity of MaderaTirUrban StreetArArIntersectionCountry Club-SherwoodFilProject DescriptionMadera Dutch Bros on Country	nalysi ime P	s Date	-			Dura	secu		ormatio	on			4ª 'A
AnalystL WymerArJurisdictionCity of MaderaTirUrban StreetArIntersectionCountry Club-SherwoodFilProject DescriptionMadera Dutch Bros on Country	nalysi ime P	s Date	- Andrew Colored and and and and and and and and and an							•			
JurisdictionCity of MaderaTirUrban StreetArIntersectionCountry Club-SherwoodFilProject DescriptionMadera Dutch Bros on Country	ime P	S Late	Dec 1	2021		Area	Turn,	n	0.250)			
Urban StreetAnIntersectionCountry Club-SherwoodFilProject DescriptionMadera Dutch Bros on Country		eriod	AMD			Area	Туре	}	CBD				×
Intersection Country Club-Sherwood Fil Project Description Madera Dutch Bros on Country	nalvei	e Voor	AIVI FE		זג	PHF			0.87				* ₽
Project Description Madera Dutch Bros on Country	ila No	s real	2042	- Dutul		Analy	ISIS H	Period	1> 7:	30	1		
inducia Dulch Bros on Country		me	Mader	a Dutci	n Bro	s IIA -	2- A	M - Cu	mulativ	e.xus		517	
	y Clu	0										14144	1-1-
Demand Information		FB			14	/B			ND			0.0	
Approach Movement	L	T	R		1.	т	P					SB	
Demand (v), veh/h	0	2	0	184			32		500	R 101		674	R
		-		104			JZ	U	590	101	13	5/1	1
Signal Information		24		5	-								
Cycle, s 120.0 Reference Phase 2			+1		F						t		~
Offset, s 0 Reference Point End Gr	roon	56	000	9						1	2	3	Y 4
Uncoordinated No Simult. Gap E/W On Ye	ellow	4.0	4.0	4.0	1/	.9 0	0.0	0.0					A
Force Mode Fixed Simult. Gap N/S On Re	ed	0.0	0.0	0.0	0.		0.0	0.0	-			7	Y.
													•
Timer Results	EBL	E	EBT	WB	L	WBT	- [NBL		NBT	SBI		SBT
Assigned Phase			4			8		5		2	1		6
Case Number		1	2.0			11.0		2.0		4.0	1.1		40
Phase Duration, s			4.4			21.9		0.0		84.0	9.6		93.6
Change Period, (Y+R c), s			4.0			4.0		4.0		4.0	4.0		4.0
Max Allow Headway (MAH), s			3.0			3.2		0.0		0.0	3.1		4.0
Queue Clearance Time (gs), s			2.2			17.2					3.8		0.0
Green Extension Time (g e), s			0.0		+	0.7	+	0.0		0.0	0.0		0.0
Phase Call Probability		0	.07			1.00				0.0	0.1		0.0
Max Out Probability		0	.00			0.00					0.00)	
Movement Group Results		FB				2			ND				
Approach Movement	T	T	R					<u> </u>	NB	-		SB	
Assigned Movement 7	7	4	14	3	9	10		E	1	R	L	T	R
Adjusted Flow Rate (v), veh/h		0	17	3	211	16	$\frac{1}{2}$	5	2	12	1	6	16
Adjusted Saturation Flow Rate (s), veh/h/ln		0			162	10	2	1620	409	386	84	329	329
Queue Service Time (g_s) , s		0.0			102		5	1029	1670	1572	1590	1670	1669
Cycle Queue Clearance Time (g c), s		0.0			15.	$\frac{12}{2}$	5	0.0	13.0	13.0	1.8	7.4	7.5
Green Ratio (g/C)					0.1		5	0.0	13.0	13.0	1.8	7.4	7.5
Capacity (c), veh/h					243	20	8	1	1112	0.07	0.73	0.75	0.75
Volume-to-Capacity Ratio (X)	1	0.000			0.86	9 0 7	30	0,000	0.267	1040	4/5	1247	1246
Back of Queue (Q), ft/In (50 th percentile)	-	0			158	3 111	8	0.000	115 5	0.308	0.177	0.264	0.264
Back of Queue (Q), veh/In (50 th percentile)	-	0.0			6.3		.0	00	115.5	109.4	13	58.1	56.7
Queue Storage Ratio (RQ) (50 th percentile)		0.00			0.0		0	0.00	4.5	4.3	0.5	2.3	2.3
Uniform Delay (d1), s/veh					40 0	10.0	7	0.00	0.00	0.00	0.00	0.00	0.00
Incremental Delay (d 2), s/veh	+	0.0			37	1	2	0.0	0.0	0.0	0.1	4.8	4.8
Initial Queue Delay (d 3), s/veh		0.0			0.0	1.0		0.0	0.9	1.0	0.1	0.5	0.5
Control Delay (d), s/veh					52 0	0.0	6	0.0	0.0	0.0	0.0	0.0	0.0
Level of Service (LOS)					03.0	, 50.	0	0.0	9.8	9.8	5.8	5.3	5.3
Approach Delay, s/veh / LOS	72 1		F	52.2				0.0	A	A	A	A	A
Intersection Delay, s/veh / LOS			- 16	3		U		9.8		A	5.4		A
			10.								5		
Multimodal Results		EB			WP				ND		Der Ban	00	
Pedestrian LOS Score / LOS	2.31	1	B	2.32	T	R		1 97		P	4.00	28	-
Bicycle LOS Score / LOS	0.49		A	1.09		A		1 1/		Δ	1.03		B

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HCS7 Signalized Intersection Results Summary

General Information																		
Agency							Inte	ersec	tion Inf	ormati	_		24					
Analyst I Wymer					Applysic Data Des 1 0001					Duration, h 0.250				_	***			
Jurisdiction	Jurisdiction City of Madera			Time Deried D			c 1,	1, 2021 Ar			Area Type			CBD			4	
Urban Street		City of Madera		Time Period P			M Peak Hour			PH	PHF				**		*****	
Intersection Country Club Shorwood					Analysis Year			2042			Analysis Period			15	1 1		*	
Project Description Medare Dutch Dress 0					ame	Ma	dera	a Dutch	n Bro	s TIA	- 2- 1	PM - CL	umulativ	e.xus		511		
Project Description Madera Dutch Bros on Cou				untry Cl	ub	No. of Concession, Name										14144	17 17	
Demand Information					FB M/D ND									CD				
Approach Move	ement			L	TT	F	२	I	T	тТ	R			D	<u> </u>			
Demand (v), v	/eh/h			4	8			297	-	3	86	8	657	229	110	704	R	
											00		037	220	110	704	3	
Signal Informa	ation				5	2	5			5								
Cycle, s	120.0	Reference Phase	2		2			+	る町		1			2	V			
Offset, s	0	Reference Point	End	Green	1.5	0.4	<u> </u>	70 7	2	2	25.2	0.0		1	2	3	4	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	/ 4.0	4.0)	4.0	4.	0	4.0	0.0	-,				A	
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0)	0.0	0.	0	0.0	0.0		5	6	7	8	
Timesu Desults				-														
Assigned Phase	~			EB		EBT		WBI		W	BT	NB		NBT	SB		SBT	
Case Number	e					4	_		_	8	3	5		2	1		6	
Phase Duration						12.0	12.0			11	.0	2.0		4.0	1.1		4.0	
Change Duration, s						6.2	-		29		.2	5.5		74.7	9.9	79.1		
Max Allow Headway (MALL)						4.0	.0		4.0		0	4.0		4.0	4.0		4.0	
Ouque Clearance Time (mAH), s						3.0	3.0		3.1		1	3.1		0.0	3.1		0.0	
Groop Extension Time (g s), S						3.0	-			24	.5	2.6			5.5			
Bhase Cell Brobshility					0.0	_			0.	8	0.0		0.0	0.2		0.0		
Max Out Probability					0.36	4			1.0	00	0.24	+			3			
Max Out 110ba	omry					0.00				0.0	00	0.00)		0.00			
Movement Gro	up Res	ults			EB				W	3			NB			CD		
Approach Move	ement			L	Т	R	-	L	Т	T	R		T	R		SD T		
Assigned Move	ment			7	4	14		3	8		18	5	2	12	1	6	16 K	
Adjusted Flow F	Rate (v), veh/h			14		T		313	3	90	8	485	436	123	360	269	
Adjusted Satura	ation Flo	w Rate (s), veh/h/l	n		1657				162	9 1	393	1629	1670	1501	1590	1670	1667	
Queue Service	Time (g	ys), S			1.0				22.	5	6.5	0.6	20.2	20.2	3.5	127	127	
Cycle Queue C	learance	e Time (g c), s			1.0				22.	5 (6.5	0.6	20.2	20.2	3.5	12.7	12.7	
Green Ratio (g	/C)				0.02				0.2	1 0	0.21	0.01	0.59	0.59	0.65	0.63	0.63	
Capacity (c), v	eh/h				30				343	3 2	293	20	984	884	366	1045	1044	
Volume-to-Capa	acity Ra	tio(X)			0.450)			0.91	2 0.	.306	0.422	0.494	0.494	0.336	0.353	0.353	
Back of Queue	(Q), ft/	In (50 th percentile)			10.8				231.	7 5	56.7	6.9	194.3	175.9	28.2	117.3	114.6	
Back of Queue	(Q), ve	h/In (50 th percentil	le)		0.4				9.3		2.2	0.3	7.6	6.9	1.1	4.6	4.6	
Queue Storage	Ratio (RQ) (50 th percent	ile)		0.00				0.0	0 0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay (d1), s/veh					58.3				46.3	3 4	0.0	58.9	14.3	14.3	10.4	10.8	10.8	
Incremental De	ay (d 2), s/veh			3.9				4.0		0.2	5.2	1.8	2.0	0.2	0.9	0.9	
Initial Queue Delay (d 3), s/veh				0.0				0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Control Delay (d), s/ve	h			62.2				50.3	3 4	0.2	64.1	16.1	16.3	10.6	11.7	11.7	
Level of Service (LOS)					E				D		D	E	В	В	В	В	В	
Approach Delay, s/veh / LOS				62.2	2	Е		48.0		D		16.6		В	11.5		В	
Intersection Delay, s/veh / LOS							20.6	6							С			
Multimodal Pa	sulte																	
Pedestrian LOS	Score	/108		0.00	EB	-			WE	3			NB	NB		SB		
Bicycle LOS Sc		ns s		2.30		B		2.32		В		1.89		В	1.66		В	
Dicycle LOS Score / LOS						A		1.15		A		1.26		A	1.20		A	

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INTERSECTION LOS OPERATIONS

Existing Plus Approved Projects (EPAP) **Plus Project**

General Information		Site Information						
Analyst	L Wymer	Intersection	Country Club-Project DW					
Agency/Co.		Jurisdiction	City of Madera					
Date Performed	1/10/2022	East/West Street	Driveway					
Analysis Year	2022	North/South Street	Country Club					
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.87					
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25					
Project Description	Madera Dutch Bros							
Lanes								





Vehicle Volumes and Adjustments

Approach	Eastbound				West	bound			North	bound		Southbound					
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R	
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	0	2	0	
Configuration			LTR				LTR			L	Т	TR		LT		TR	
Volume (veh/h)		1	0	4		46	0	39	0	11	534	48		34	608	5	
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3				3			
Proportion Time Blocked																	
Percent Grade (%)	0				0												
Right Turn Channelized	ight Turn Channelized																
Median Type Storage	Median Type Storage Left +								1								
Critical and Follow-up H	leadwa	ys															
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1		ŀ	
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23			
Delay, Queue Length, an	d Leve	l of Se	ervice														
Flow Rate, v (veh/h)			6				98			13				39			
Capacity, c (veh/h)			486				377			883				910			
v/c Ratio			0.01				0.26			0.01				0.04			
95% Queue Length, Q ₉₅ (veh)			0.0				1.0			0.0				0.1			
Control Delay (s/veh)			12.5				17.9			9.1				9.1			
Level of Service (LOS)			В				С			A				A			
Approach Delay (s/veh)		12	2.5		17.9					0	.2		0.8				
Approach LOS			В				С										

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General Information		Site Information	
Analyst	L Wymer	Intersection	Country Club-Project DW
Agency/Co.		Jurisdiction	City of Madera
Date Performed	1/10/2022	East/West Street	Driveway
Analysis Year	2022	North/South Street	Country Club
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.95
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Madera Dutch Bros		
Lanes			
	T A A L L		



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Vehicle Volumes and Adjustments

Approach	Eastbound					West	bound		<u> </u>	North	bound		Southbound				
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	I	т	R	
Priority		10	11	12		7	8	9	10	1	2	3	40	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	0	2	0	
Configuration			LTR				LTR			L	T	TR		IT	2	TR	
Volume (veh/h)		3	1	5		61	0	49	0	2	504	66		27	566	2	
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3				3	500	-	
Proportion Time Blocked																	
Percent Grade (%)			0							L				<u> </u>			
Right Turn Channelized																	
Median Type Storage	e Storage Left								1								
Critical and Follow-up He	adway	/S															
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1				4.1	[<u> </u>	
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33	100.00	2.23				2.23			
Delay, Queue Length, and	d Level	of Se	ervice														
Flow Rate, v (veh/h)			9			I	116		Γ	2				28			
Capacity, c (veh/h)			437				435			968				966			
v/c Ratio			0.02				0.27			0.00				0.03			
95% Queue Length, Q95 (veh)			0.1				1.1			0.0				0.1			
Control Delay (s/veh)			13.4				16.3			8.7				8.8			
Level of Service (LOS)			В				С			A				A			
Approach Delay (s/veh)		13	3.4		16.3					0	.0		0.6				
Approach LOS			3		С												

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General Inform	nation									Int	tersec	tion Inf	ormatio						
Agency										Du	uration	h	0.250		444				
Analyst		L Wymer		Analy	sis Da	te De	ec 1,	2021		Ar	rea Typ	е	CBD		14		1		
Jurisdiction		City of Madera		Time	Period	AN	I Pe	ak Hou	ır	PH	HF		0.87			4	₹		
Urban Street				Analy	sis Yea	ar 20	22			Ar	nalvsis	Period	1> 7:	30	4 4				
Intersection		Country Club-Sher	wood	File N	ame	Ma	ader	a Dutch	n Bro	s TI	A - 2- A	AM - EF	AP+Pro	piect xus	-	K A 4.	C.		
Project Descrip	otion	Madera Dutch Bros	on Cou	untry Clu	ub									Joonnad	-		Pr 1"		
													10.114.144.5 - 01.10.10.5 - Contraction						
Demand Infor	mation				EE	3			V	VB			NB			SB			
Approach Move	ement			L	Т		R	L		Т	R	L	Т	R	L	Т	R		
Demand (v), v	/eh/h			0	2		0	174		0	128	0	517	90	73	573	1		
Signal Information				1		1 1													
Cycle s 120.0 Poforonce Dhose 0					213		₿a.	28	Ľ						-				
Offect e	120.0	Reference Phase	Z				tr	"R"							R	3	- •		
Uncoordinated	No	Simult Con EAA	End	Green	5.6	80	0.8	0.4	17	7.1	0.0	0.0					K		
Eoroo Modo	Fixed	Simult. Gap E/W	On	Yellow	/ 4.0	4.	0	4.0	4.	0	0.0	0.0					*		
1 OICE MODE	Fixed	Simult. Gap N/S	On	Red	0.0	[0.	0	0.0	0.	0	0.0	0.0		5	6	7	8		
Timer Results				EDI		EDT	-	14/171		10					- Mathiana and a second				
Assigned Phase						EDI		WB		V	VRI	NB		NBT	SB	-	SBT		
Case Number						4			\rightarrow	4	8	5		2	1		6		
Phase Duration	1. S					12.0	-		-+	1	1.0	2.0		4.0	1.1		4.0		
Change Period	(Y+R)	c) S		4		4.4					1.1	0.0		84.8	9.6		94.5		
Max Allow Hea	dway (A	MAH) s				3.0					+.0	4.0		4.0	4.0		4.0		
Queue Clearan	ce Time	(a_s) , s				2.2				1	5.Z	0.0		0.0	3.1		0.0		
Green Extensio	on Time	(ge).s				2.2				1	0.4	0.0		0.0	3.8				
Phase Call Pro	bability	(90,0				0.07	-			1	0.1	0.0		0.0	0.1		0.0		
Max Out Proba	bility					0.07				1.	.00				0.94				
				Constanting of		0.00				U.	.00				0.00)			
Movement Gro	oup Res	sults			EB				W	В			NB			SB			
Approach Move	ement			L	Т	R	2	L	Т	T	R	L	Т	R	L	T	R		
Assigned Move	ement			7	4	14	4	3	8	Ť	18	5	2	12	1	6	16		
Adjusted Flow	Rate (v), veh/h			0				200	0	147	0	359	339	84	330	330		
Adjusted Satura	ation Flo	ow Rate (s), veh/h/l	n		0				162	9	1390	1629	1670	1571	1590	1670	1669		
Queue Service	Time (g	gs), S			0.0				14.	4	12.2	0.0	10.7	10.8	1.8	7.3	7.3		
Cycle Queue C	learance	e Time (gc), s			0.0				14.	4	12.2	0.0	10.7	10.8	1.8	7.3	7.3		
Green Ratio (g	/C)								0.1	4	0.14		0.67	0.67	0.74	0.75	0.75		
Capacity (c), v	/eh/h								232	2	198	1	1125	1058	524	1259	1258		
Volume-to-Cap	acity Ra	tio (X)			0.00	D			0.86	63 (0.743	0.000	0.319	0.320	0.160	0.262	0.262		
Back of Queue	(Q), ft/	In (95 th percentile)			0				250	.4	196	0	169.6	161	22.3	100.7	98.3		
Back of Queue	(Q), ve	eh/In (95 th percenti	le)		0.0				10.	0	7.7	0.0	6.6	6.3	0.9	3.9	3.9		
Queue Storage	Ratio (RQ) (95 th percent	tile)		0.00				0.0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Uniform Delay	(d1), s/	veh							50.	3	49.4	0.0	8.1	8.1	5.2	4.5	4.5		
Incremental De			0.0				3.7		2.1	0.0	0.7	0.8	0.1	0.5	0.5				
Initial Queue De			0.0				0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (Control Delay (d), s/veh								54.	0	51.4	0.0	8.9	8.9	5.2	5.0	5.0		
Level of Service							D		D		А	Α	Α	A	Α				
Approach Delay, s/veh / LOS				72.1	1	E		52.9			D	8.9		A	5.1		A		
Intersection De	15.9											В	3						
Multimodel De	Multimodal Results																		
Pedestrian LOS	Soore	/100		EB				WB					NB			SB			
Bicycle LOS So	Bicycle LOS Score / LOS					B		2.32	-		В	1.87		В	1.62	2	В		
Dicycle LUS 30	Bicycle LOS Score / LOS					A		1.06	5		A	1.06	5	A	1.10		A		

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General Inform	nation									-	4! 1 (1		1		
Agency										itersec		ormatio		411	24 54		
Analyst		l Wymer		Analy		to Dee	1 2021		H		, n	0.250)				
Jurisdiction		City of Madera		Time	Doriod					area Typ	be	CBD				×	
Urban Street		ony or madora		Analy		or 2022		our		'HF	Deuted	0.96	4 5			• ↓	
Intersection		Country Club-Shen	wood	File N			ara Duta	a Da		TIA 2 DM EDAD D						2	
Project Descrip	tion	Madera Dutch Bros	on Col	Intra Ch	ame	Iviad	era Duto	n Bro	os I	IA - 2-	PM - EF	PAP+Pro	oject.xu	S	511		
i i oject Decemp	don	Madera Dutch Dios	On Col		ub			eles alagunasi (a. c. a. c							14/14/	24	
Demand Inform	mation				EB	3		1	WB			NB			CD		
Approach Move	ement			L	Тт	R		T	Т	R		T	TP				
Demand (v), v	/eh/h			4	8	1	243	3	3	83	8	556	203	103	502		
										00		000	203	103	505		
Signal Information					5	21			- 5	2							
Cycle, s	Cycle, s 120.0 Reference Phase 2				7				3 2	7			2	V		-	
Offset, s	0	Reference Point	End	Green	15	0.4	74 0		3	21 1	0.0		1	2	3	4	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	/ 4.0	4.0	4.0	4	.0	4.0	0.0	-				4	
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	0.0	0.0	0	0.0	0.0	0.0		5	6	7	8	
Timer Results				EBI		EBT	WE	3L	١	WBT	NB	L	NBT	SB		SBT	
Assigned Phase	e			-		4				8	5		2	1		6	
Case Number						12.0			-	11.0	2.0		4.0	1.1		4.0	
Change Duration	I, S					6.2				25.1	5.5		78.9	9.8		83.3	
Change Period,	, (Y+R a	;), S		4.		4.0				4.0	4.0		4.0	4.0		4.0	
Max Allow Head	dway (A	/AH), s				3.0				3.1	3.1		0.0	3.1		0.0	
Queue Clearan	ce lime	(gs), s				3.0			2	20.5	2.6			4.7			
Green Extensio	n Time	(ge), s				0.0				0.6	0.0		0.0	0.2		0.0	
Phase Call Pro	bability					0.36				1.00	0.24	1		0.97	7		
Max Out Proba	bility					0.00			(0.00	0.00)		0.00)		
Movement Gro	oup Res	ults			EB			W	/B			NB			SB		
Approach Move	ement			L	Т	R	L	Тт	- 1	R	L	T	R		<u>ЗБ</u>	D	
Assigned Move	ment			7	4	14	3	8	3	18	5	2	12	1	6	16	
Adjusted Flow F	Rate (v), veh/h			14			25	6	86	8	416	374	107	264	263	
Adjusted Satura	ation Flo	w Rate (s), veh/h/li	n		1657	7		16	30	1392	1629	1670	1495	1590	1670	1666	
Queue Service	Time (g	/s), S			1.0			18	.5	6.6	0.6	15.0	15.1	27	76	7.6	
Cycle Queue C	learance	e Time (g c), s			1.0			18	.5	6.6	0.6	15.0	15.1	2.7	7.6	7.6	
Green Ratio (g.	/C)				0.02			0.1	18	0.18	0.01	0.62	0.62	0.69	0.66	0.66	
Capacity (c), v	eh/h				30			28	6	245	20	1042	933	442	1103	1100	
Volume-to-Capa	acity Ra	tio (X)			0.450	D		0.8	95	0.353	0.422	0.400	0.401	0.243	0.239	0.239	
Back of Queue	(Q), ft/	In (50 th percentile)			10.8			191	1.5	57.5	6.9	139.4	126.2	20.9	68	66.5	
Back of Queue	(Q), ve	h/In (50 th percentil	e)		0.4			7.	7	2.2	0.3	5.4	4.9	0.8	2.7	27	
Queue Storage	Ratio (RQ) (50 th percent	ile)		0.00			0.0	00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Uniform Delay ((d1), s/	veh			58.3			48	.4	43.5	58.9	11.3	11.3	77	8.2	8.2	
Incremental De	lay (d 2), s/veh			3.9			3.	9	0.3	5.2	1.1	13	0.1	0.2	0.2	
Initial Queue De			0.0			0.	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Control Delay (Control Delay (d), s/veh							52	.3	43.8	64.1	12.4	12.6	7.8	87	87	
Level of Service	Level of Service (LOS)							D	,	D	E	B	B	Α	Δ	Δ	
Approach Delay	Approach Delay, s/veh / LOS				2	E	50.	2		D	13.0		В	86		A	
Intersection Del	Intersection Delay, s/veh / LOS				18.9									B			
No. 141	Multimodal Desults																
Multimodal Res	sults				EB		WB		B		NB			SB			
Pedestrian LOS Score / LOS						В	2.3	2		В	1.88	3	В	1.65		В	
BICYCIE LOS SC	Bicycle LOS Score / LOS					Α	1.0	5		Α	1.15		A	1.01		A	

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INTERSECTION LOS OPERATIONS

Cumulative (2042) Plus Project

HCS7 Two-Way Stop-Control Report

General Information		Site Information								
Analyst	L Wymer	Intersection	Country Club-Project DW							
Agency/Co.		Jurisdiction	City of Madera							
Date Performed	1/10/2022	East/West Street	Driveway							
Analysis Year	2042	North/South Street	Country Club							
Time Analyzed	AM Peak Hour	Peak Hour Factor	0.87							
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25							
Project Description	Madera Dutch Bros									
Lanes										





Vehicle Volumes and Adjustments

Approach		Easth	bound			West	bound			North	bound		Southbound				
Movement	U	L	Т	R	U	L	Т	R	U		Т	R		Journ	т	Р	
Priority		10	11	12		7	8	9	10	1	2	3	411	1	5	R C	
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0	
Configuration			LTR				LTR				T	TR			T		
Volume (veh/h)		1	0	4		46	0	39	0	11	622	48	0	34	617	5	
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	34	017	3	
Proportion Time Blocked												-					
Percent Grade (%)	Percent Grade (%) 0																
Right Turn Channelized																	
Median Type Storage					And the second second	1											
Critical and Follow-up H	eadway	ys															
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9	ſ	4.1				41		T	
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				22			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				223			
Delay, Queue Length, an	d Level	of Se	ervice														
Flow Rate, v (veh/h)			6				98			13				39			
Capacity, c (veh/h)			477				343			875				834			
v/c Ratio			0.01				0.29			0.01				0.05			
95% Queue Length, Q ₉₅ (veh)			0.0				1.2			0.0				0.1			
Control Delay (s/veh)			12.6				19.6			9.2				9.5			
Level of Service (LOS)			В				С			A				A			
Approach Delay (s/veh)		12	2.6			15	9.6			0	.1		05				
Approach LOS		l	В			(С					0.0					

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Madera Dutch Bros - 1 - AM - Cumulative+Project.xtw

HCS7 Two-Way Stop-Control Report

General Information		Site Information								
Analyst	L Wymer	Intersection	Country Club-Project DW							
Agency/Co.		Jurisdiction	City of Madera							
Date Performed	1/10/2022	East/West Street	Driveway							
Analysis Year	2042	North/South Street	Country Club							
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.95							
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25							
Project Description	Madera Dutch Bros									

Lanes



Vehicle Volumes and Adjustments

Approach		Eastb	ound			West	bound			North	bound		Southbound				
Movement	U	L	Т	R	U	L	Т	R	U	L	Т	R	U	L	Т	R	
Priority		10	11	12		7	8	9	10	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	2	0	0	1	2	0	
Configuration			LTR				LTR		1	L	Т	TR		L	Т	TR	
Volume (veh/h)		3	1	5		61	0	46	0	2	597	66	0	27	808	2	
Percent Heavy Vehicles (%)		3	3	3		3	3	3	3	3			3	3			
Proportion Time Blocked																	
Percent Grade (%)	ent Grade (%) 0						0									<u> </u>	
Right Turn Channelized																	
Median Type Storage				Left +	- Thru							1					
Critical and Follow-up H	leadwa	ys															
Base Critical Headway (sec)		7.5	6.5	6.9		7.5	6.5	6.9		4.1			T	4.1		T	
Critical Headway (sec)		7.56	6.56	6.96		7.56	6.56	6.96		4.16				4.16			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33	1	2.23				2.23			
Delay, Queue Length, an	nd Leve	l of Se	ervice													1	
Flow Rate, v (veh/h)			9				113	I	I	2				28		T	
Capacity, c (veh/h)			333				362			776				888			
v/c Ratio	-		0.03				0.31		1	0.00				0.03			
95% Queue Length, Q ₉₅ (veh)			0.1				1.3			0.0				0.1	2.2.4.6		
Control Delay (s/veh)			16.1			1	19.3			9.7				9.2			
Level of Service (LOS)			С				С			A				A	1000		
Approach Delay (s/veh)		10	5.1			19	9.3			0	.0		0.3				
Approach LOS	C						с										

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Madera Dutch Bros - 1 - PM - Cumulative+Project.xtw

General Inform	nation									Ind	toreco	tion Inf							
Agency											tersec			414	2ª 14				
Analyst		I Wymer		Analy		ata	Dec 1	2021			uration,	n	0.250				-		
Jurisdiction	And States on the second second	City of Madera	alle full université des sous de la comme de la com	Time	SIS Da	ale		, 2021		Ar	ea Typ	е	CBD				×		
Urban Street		City of Madera	N DEDITION AND A MERIDIAN	Anohu			AIVI PO	eak Hol	lr	Pr			0.87				* ≠ *		
Intersection		Country Club Shon	wood	File N	SIS TE	ear	2042	De tel		Analysis Period 1> 7:30					7		F.		
Project Descrip	tion	Madara Dutch Broo		File N	ame		Made	ra Dutci	n Bro	SIL	A - 2- A	AM - Cu	mulativ	e+Proj.		<u>1</u> ++			
T Tojeet Descrip		Madera Dutch Bros	on Col	unity Cl	db											1 4 1 4 4	11		
Demand Inform	nation				F	B			M	/B			NB			CD			
Approach Move	ement					r T	R			T	P				SB				
Demand (v), v	eh/h			0		2	0	184		0	136		500	101	- L	570	R		
								104		0	130	0	099	101	11	5/9	1		
Signal Information					21	5		5	1										
Cycle, s	120.0	Reference Phase	2				+		7					2	T		-		
Offset, s	0	Reference Point	End	Green	57	,	70.0	0.4	- 1-	7.0	0.0	0.0		1	2	3	Y 4		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0		4.0	4.0	4	0	0.0	0.0	-				4		
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0)	0.0	0.0	0.	0	0.0	0.0		5	6	7	8		
															and the second secon				
Timer Results				EB	L	E	BT	WB	L	N	VBT	NB		NBT	SBI		SBT		
Assigned Phase	e						4				8	5		2	1		6		
Case Number						1:	2.0			1	1.0	2.0		4.0	1.1		4.0		
Phase Duration	l, S					4	1.4			2	1.9	0.0		83.9	9.7		93.6		
Change Period,	, (Y+R a	c), S				4	1.0			4	4.0	4.0		4.0	4.0		4.0		
Max Allow Head	dway (A	IAH), s				3	3.0			3	3.2	0.0		0.0	3.1		0.0		
Queue Clearan	ce Time	(gs), s				2	2.2			1	7.2				3.9				
Green Extensio	n Time	(ge), s				0	0.0			C	0.7	0.0		0.0	0.1		0.0		
Phase Call Pro	bability					0.	.07			1.	.00				0.95	5			
Max Out Proba	bility					0.	.00			0.	.00				0.00)			
Movement Gro	oup Res	ults			E	3			W	В			NB			SB			
Approach Move	ement			L	T		R	L	Т	Т	R	L	Т	R	1	T	R		
Assigned Move	ment			7	4	T	14	3	8	1	18	5	2	12	1	6	16		
Adjusted Flow F	Rate (v), veh/h			0	T			21	1	156	0	414	391	89	333	333		
Adjusted Satura	ation Flo	w Rate (s), veh/h/l	n		0	T			162	9	1391	1629	1670	1573	1590	1670	1669		
Queue Service	Time (g)s), S			0.0	0			15.	2	12.9	0.0	13.2	13.2	1.9	76	7.6		
Cycle Queue C	learance	e Time (g c), s			0.0	0			15.	2	12.9	0.0	13.2	13.2	1.9	7.6	7.6		
Green Ratio (g	/C)								0.1	5	0.15		0.67	0.67	0.73	0.75	0.75		
Capacity (c), v	eh/h								244	4	208	1	1112	1048	471	1247	1246		
Volume-to-Capa	acity Ra	tio (X)			0.00	00			0.86	68 (0.752	0.000	0.372	0.373	0.188	0.267	0.267		
Back of Queue	(Q), ft/	In (50 th percentile)			0				158	.2	115.8	0	117.4	111.2	13.7	58.7	57.5		
Back of Queue	(Q), ve	h/In (50 th percenti	le)		0.0)			6.3	3	4.5	0.0	4.6	4.3	0.5	2.3	2.3		
Queue Storage	Ratio (RQ) (50 th percent	ile)		0.0	0			0.0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Uniform Delay ((d1), s/	veh							49.	9	48.9	0.0	8.9	8.9	5.8	4.8	4.8		
Incremental Delay (d 2), s/veh					0.0)			3.7	-	2.1	0.0	1.0	1.0	0.1	0.5	0.5		
Initial Queue De			0.0)			0.0	5	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (Control Delay (d), s/veh								53.	6	51.0	0.0	9.9	9.9	5.8	53	53		
Level of Service							D	-	D		A	A	Δ	Δ	Δ				
Approach Delay, s/veh / LOS				72.1	IT		E	52.4	I		D	99		A	54				
Intersection Delay, s/veh / LOS							16	.3				0.0		5.4 A B					
Multimodel Deculto																			
Multimodal Re	Multimodal Results				EB				3			NB		SB					
Pedestrian LOS Score / LOS				2.31			В	2.32	2		В	1.87		В	1.63		В		
Bicycle LOS Sc		0.49			A	1.09	1.09		A	1.15	;	Α	1.11		A				

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Conservable	4.8																			
General Inform	nation	The second s									ntersec	tion Inf		J A LAM I	de la					
Agency				-			-			D	Juration	, h	0.25	0		444				
Analyst		L Wymer		Analy	sis D	ate	Dec 1	, 2021		A	rea Typ	e	CBE)	4		4.			
Jurisalction		City of Madera		Time	Perio	dI	PM P	eak Ho	ur	Ρ	PHF		0.96		**					
Urban Street				Analy	sis Ye	ear 2	2042			A	Analysis Period 1> 4:15						*			
Intersection		Country Club-Sherw	ood	File N	lame	[I	Made	ra Dutc	h Br	ros T	TA - 2- I	PM - Cu	umulati	ve+Pro.		5 + 1*				
Project Descrip	otion	Madera Dutch Bros	on Cou	untry Cl	ub		No. of Concession, Name									14144	* *			
Demand Inform	mation					B														
Approach Move	ement			EB WB						NE	3		SB							
Demand (v) v	eh/h						R	L		T	R	L	Т	R	L	T	R			
				4		5	1	297		3	89	8	66	2 228	121	710	3			
Signal Information						JII.	LUE.		F	5	1									
Cycle, s 120.0 Reference Phase 2				5		643	RA3		3	R				ta		~				
Offset, s	0	Reference Point End		Crook		1	0 -		rr	Ň				1	2	3	4			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	1 1.5		0.5	10.1		2.2	25.2	0.0		R			A			
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0		0.0	0.0		+.0 0.0	0.0	0.0			1×	7	¥.			
												1010					0			
Timer Results				EB	L	E	BT	WB	L	1	WBT	NB		NBT	SB		SBT			
Assigned Phase	e					4	1				8	5		2	1		6			
Case Number						12	2.0			-	11.0	2.0		4.0	1.1		4.0			
Phase Duration	, S					6.	.2			2	29.2	5.5		74.7	9.9		79.1			
Change Period,	, (Y+R a	c), S		4.		.0				4.0	4.0		4.0	4.0		4.0				
Max Allow Head	dway (A	/AH), s				3.	.0				3.1	3.1		0.0	3.1		0.0			
Queue Clearan	ce Time	(gs), s				3.	.0			2	24.5	2.6			5.6					
Green Extension Time (ge), s						0.	.0				0.8	0.0		0.0	0.2		0.0			
Phase Call Prol	bability		THE R. LEWIS CO.			0.3	36			1	1.00	0.24	4		0.99	3				
Max Out Proba	bility					0.0	00				0.00	0.00)		0.00)				
Movement Gro	up Res	ults			EP	2			10	/D			ND							
Approach Move	ement			1			R				D		NB			SB				
Assigned Move	ment			7	4		14	3	5	8	18	E	2	R	L	T	R			
Adjusted Flow F	Rate (v), veh/h			14				3	13	03	8	2	12	1	6	16			
Adjusted Satura	ation Flo	w Rate (s), veh/h/In			165	7			16	29	1303	1620	400	439	120	372	3/1			
Queue Service	Time (g	(s), S			1.0				22	25	6.8	0.6	20.4	20.4	1590	1070	1667			
Cycle Queue C	learance	Time (g c), s			1.0				22	2.5	6.8	0.6	20.4	20.4	3.0	12.0	12.8			
Green Ratio (g	/C)				0.0	2			0.2	21	0.21	0.01	0.59	0.59	0.65	0.63	12.0			
Capacity (c), v	eh/h				30				34	43	293	20	983	884	364	1045	1044			
Volume-to-Capa	acity Ra	tio(X)			0.45	50			0.9	12	0.316	0.422	0.496	0.496	0.346	0.356	0 356			
Back of Queue	(Q), ft/	In (50 th percentile)			10.	8			23	1.6	58.9	6.9	195.8	177.3	29	118.8	115.9			
Back of Queue	(Q), ve	h/ln (50 th percentile	e)		0.4	1			9.	.3	2.3	0.3	7.6	6.9	1.1	4.6	46			
Queue Storage	Ratio (RQ) (50 th percentil	e)		0.0	0			0.0	00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
Uniform Delay (d 1), s/	veh			58.	3			46	5.3	40.1	58.9	14.3	14.3	10.5	10.8	10.8			
Incremental Delay (d 2), s/veh					3.9)			4.	.0	0.2	5.2	1.8	2.0	0.2	0.9	0.9			
Initial Queue De			0.0				0.	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Control Delay (Control Delay (d), s/veh					2			50).2	40.3	64.1	16.1	16.3	10.7	11.7	11.7			
Level of Service	Level of Service (LOS)								C		D	E	В	В	В	В	В			
Approach Delay, s/veh / LOS				62.2	2	E		48.0			D	16.6		В	11.6		B			
Intersection Delay, s/veh / LOS				20.7					.7						С) D				
Multimodal Results																				
Pedestrian LOS Score /LOS				EB					W	/B			NB			SB				
Bicycle LOS Score / LOS				2.30 E				2.32	2		В	1.89		В	1.66		В			
Dicycle LUS SC		0.51 A				1.16			A	1.26		A	1.20		A					

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