

RIVERSIDE HAULING YARD (AGUA MANSA/WILSON) FOCUSED TRAFFIC ANALYSIS

City of Jurupa Valley

December 3, 2021



Traffic Engineering • Transportation Planning • Parking • Noise & Vibration
Air Quality • Global Climate Change • Health Risk Assessment



December 3, 2021

Mr. Gary Koontz, Facility Project Manager
BURRTEC WASTE INDUSTRIES, INC
9890 Cherry Avenue
Fontana, California 92335

RE: Riverside Hauling Yard (Agua Mansa/ Wilson) Focused Traffic Analysis
Project No. 19393

Dear Mr. Koontz:

INTRODUCTION

Ganddini Group, Inc. is pleased to provide this Focused Traffic Analysis for the Riverside Hauling Yard (Agua Mansa/ Wilson) in the City of Jurupa Valley. The purpose of this Focused Traffic Analysis is to provide an assessment of potential transportation impacts resulting from development of the proposed Riverside Hauling Yard (Agua Mansa/ Wilson). Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with terms related to transportation engineering.

PROJECT DESCRIPTION

The approximately 10-acre project site is located at the southeast corner of Agua Mansa Road and Wilson Street in the City of Jurupa Valley California. An existing Burrtec Waste Industrial yard is located immediately north of the project site at the RA Nelson Material Recovery Facility (MRF)/Transfer Station. The proposed project involves relocation of all administrative, truck maintenance, and truck/employee parking to the proposed project site. Proposed structures include a 10,275 square foot office, a 19,137 square foot vehicle maintenance building and parking spaces for the following: 180 standard, 7 ADA, 163 trash truck, 18 maintenance van and 7 maintenance trucks. Figure 1 shows the project location map.

Vehicular employee and truck parking access for the existing Burrtec Waste Industrial yard will relocate from the Agua Mansa Road at R.A. Nelson Station intersection to the proposed truck and employee parking access driveways on Wilson Street. All trash, recycling, and green waste processing will continue to be processed through the existing RA Nelson MRF/Transfer Station. The site plan is illustrated on Figure 2.

The project will not increase employees or trucks with the relocation of administrative, truck maintenance, and truck/employee parking to the proposed project site.

Existing Operations

An existing Burrtec Waste Industrial yard operates from 5:00 AM to midnight. Current staffing and shift hours are shown below:

- Collection drivers (99) and Yard supervisors (3) work from 5:00 AM to 6:00 PM.
- Yard mechanics (25) operate from 5:00 AM to midnight in two-shifts.
- Office staff (14) works from 8:00 AM to 5:00 PM.

Currently, 99 trucks provide residential and commercial waste collection service for the cities of Riverside, Jurupa Valley and Rialto. Commercial and residential collection trucks leave the yard by 6:00 AM. Riverside and Jurupa Valley trucks return to the existing RA Nelson MRF/Transfer Station for processing of all trash, recycling, and green waste. However, Rialto trash trucks dump at the Mid-Valley Landfill in Rialto, and do not return until the end of the day.

Future Operations

The Burrtec Waste Industrial operation is expected to expand with City growth as follows:

Opening Day – 5 Years

- City of Riverside - Add 1 residential route
- City of Rialto – Add 1 commercial route
- City of Jurupa Valley – Add 2 residential routes
- Add 2 roll off trucks
- Add 1 bin truck
- Add 1 bulky waste stake truck
- Add 1 food waste recycling route
- Add 1 Mechanic to 1st shift and 3 to 2nd shift
- Add 1 customer service representative

This would increase staffing for office (1), yard mechanics (4), yard supervisors (1), and collection drivers (18) by a total of 24 employees and increase trucks by 18.

Years 6 – 10

- City of Riverside - Add 1 commercial route
- City of Rialto – Add 1 commercial route
- City of Jurupa Valley – Add 1 residential route and 1 commercial route
- Add 2 roll off trucks
- Add 1 bin truck
- Add 1 bulky waste stake truck
- Add 1 food waste recycling route
- Add 1 Mechanic to 1st shift and 3 to 2nd shift

This would add increase staffing for yard mechanics (4) and collection drivers (12) by a total of 16 employees and increase trucks by 12.

PROJECT TRIPS

Since the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021) does not include data for Material Recovery Facility (MRF)/Transfer Station facilities, trip rates were derived from staffing and trucking records provided by the applicant for the existing facility. Attachment B contains the staffing and truck records.

Trips generated by employees were determined based on shift hours for each group of employees. The shift hours by employee type is office (8:00 AM to 5:00 PM), yard mechanics (5:00 AM to 5:00 PM or 12 Noon to 12 midnight), yard supervisors (5:00 AM to 6:00 PM), and collection drivers (5:00 AM to 6:00 PM). The office staff will arrive during the AM peak commute period (7-9 AM) and depart during the PM peak commute period (4-6 PM). The yard supervisors, yard mechanics and collection drivers arrive prior to the AM commute period

and leave during the PM commute period. Each employee was presumed to generate one inbound trip at the start of their shift and one outbound trip at the end of their shift.

Additionally, each truck was presumed to generate one outbound trip at the start of the day and one inbound trip at the end of the day. All outbound truck trips for the commercial and residential routes occur prior to the AM commute period. The inbound truck trips for the commercial and residential routes are based on actual truck counts per hour from 3:00 PM to 7:00 PM. The inbound truck trips were derived from the count of 31% from 3:00 PM to 4:00 PM, 33% from 4:00 PM to 5:00 PM, 27% from 5:00 PM to 6:00 PM, and 9% from 6:00 PM to 7:00 PM.

Table 1 shows the existing and proposed inbound and outbound parking lot trips for employees and trucks. Based on existing usage the proposed driveway relocation will continue to generate 468 daily trips, including 14 trips during the AM peak hour and 164 trips during the PM peak hour. Based on the projected 5-year growth, the proposed project is forecast to generate approximately 84 additional daily trips, including 25 additional trips during the AM peak hour and 30 additional trips during the PM peak hour. Based on the projected 6- to 10-year growth period, the proposed project is forecast to generate an additional 55 daily trips, including 8 trips during the AM peak hour and 19 additional trips during the PM peak hour. As shown in Table 1, the proposed project is forecast to result in a total of approximately 139 net new daily trips, including 33 net new trip during the AM peak hour and 49 net new trips during the PM peak hour.

Table 2 shows the project trip generation. The project trip generation is shown in both vehicle trips and Passenger Car Equivalent (PCE) trips. In accordance with City of Jurupa Valley guidelines, truck-oriented projects should convert truck trips to PCE trips for purposes of capacity analysis. The project-generated truck trips were converted to PCE trips based on the PCE factors recommended by the City of Jurupa Valley (1.5 for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with 4 or more axles).

As shown in Table 2, Phase 1 of the proposed project is forecast to generate approximately 84 additional daily trips, including 25 additional trips during the AM peak hour and 30 additional trips during the PM peak hour, which equates to approximately 156 daily PCE trips, including 49 PCE trips during the AM peak hour and 52 PCE trips during the PM peak hour.

Phase 2 of the proposed project is forecast to generate a total of approximately 139 additional daily trips (inclusive of Phase 1 trips), including 33 additional trips during the AM peak hour and 49 net new trips during the PM peak hour, which equates to a total of approximately 213 daily PCE trips, including 57 PCE trips during the AM peak hour and 60 PCE trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION & ASSIGNMENT

Figure 3 and Figure 4 show the forecast outbound and inbound directional distribution patterns for the project generated trips, respectively. The project trip distribution patterns were determined in consultation with City staff based on review of existing traffic data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, project weekday average daily traffic volumes are shown on Figure 5, as well as, the Project-generated AM peak hour and PM peak hour intersection turning movement volumes.

DIVERTED TRIPS

Figure 7 shows the existing outbound and inbound directional distribution patterns for the existing Burrtec Waste Industrial yard traffic volumes which will relocate from the Agua Mansa Road at R.A. Nelson Station intersection to the proposed access driveways on Wilson Street.

STUDY INTERSECTIONS

Based on the study intersections identified in the approved scoping agreement (Appendix B), the study area consists of the following study intersections within the City of Jurupa Valley.

Study Intersections ¹	Jurisdiction
1. Agua Mansa Road (NS) at Wilson Street (EW)	City of Jurupa Valley
2. Project West Driveway (NS) at Wilson Street (EW)	City of Jurupa Valley
3. Project Center Driveway (NS) at Wilson Street (EW)	City of Jurupa Valley
4. Project East Driveway (NS) at Wilson Street (EW)	City of Jurupa Valley

Notes:

(NS) = North-South roadway; (EW) = East-West roadway

INTERSECTION DELAY METHODOLOGY

The methodology used to assess the performance of intersections in the City of Jurupa Valley is known as the intersection delay method based on the procedures contained in the *Highway Capacity Manual* (Transportation Research Board, 6th Edition). The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board, *Highway Capacity Manual* (6th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). At intersections with traffic signal or all way stop control, Level of Service is determined by the average control delay for the overall intersection. At intersections with cross street stop control (i.e., one- or two-way stop control), Level

of Service is determined by the average control delay for the worst minor street approach or major street left turn movement.

Intersection delay analysis was performed using the Synchro software with default capacity values and adjustment factors recommended in the *Highway Capacity Manual*. The intersection Level of Service analysis has been performed in accordance with the City of Jurupa Valley *Traffic Impact Analysis Guidelines* (August 2020) ["TIA Guidelines"].

PERFORMANCE STANDARDS

The City of Jurupa Valley General Plan Policy ME2.1.2, seeks to maintain at least a Levels of Service (D or better) at all intersections, except where flexibility is warranted based on a multi-modal LOS evaluation, or where LOS E is deemed appropriate to accommodate complete streets/multi-modal facilities. Intersections operating at Level of Service E or F are considered deficient.

OPERATING REQUIREMENTS

Based on the performance standards established by the City of Jurupa Valley, operational improvements would be required under the following conditions:

Signalized Intersections

- Any study intersection operating at an acceptable Level of Service (D or better) without project traffic in which the addition of project traffic causes the intersection to degrade to a Level of Service (E or F) shall identify improvements to improve operations to Level of Service (D or better). For designated town centers and for multimodal mobility corridors that support transit-oriented development and walkable communities, LOS E may be deemed acceptable by the City Council.
- Any signalized study intersection that is operating at Level of Service (E or F) without project traffic where the project increases delay by 3.0 or more seconds shall identify improvements to offset the increase in delay.

Unsignalized Intersections

An operational improvement would be required if the study determines that either section (a) or both sections (b and c) occur:

- a) The addition of project related traffic causes the intersection to degrade from an acceptable Level of Service D or better to Level of Service E or F.

OR

- b) The project adds 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at a Level of Service E or F.

AND

- c) The intersection meets the peak hour traffic signal warrant after the addition of project traffic.

If the conditions above are satisfied, improvements should be identified that achieve the following:

- Level of Service D or better for case a) above or to pre-project Level of Service and delay for case b) above.

EXISTING VOLUMES & FUTURE VOLUME FORECASTS

Existing

Existing peak hour volumes are based upon AM peak period and PM peak period intersection turning movement counts obtained in October 2021 during typical weekday conditions. The AM peak period was counted between 7:00 AM and 9:00 AM and the PM peak period was counted between 4:00 PM and 6:00 PM. The peak hour within the peak period is based on the four consecutive 15-minute periods with the highest total volume. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C.

Existing average daily traffic volumes are shown on Figure 6, as well as, the existing AM peak hour and PM peak hour intersection turning movement volumes.

Diverted Existing Trips With Project

To account for the existing Burrtec Waste Industrial yard traffic volumes which will relocate from the Agua Mansa Road at R.A. Nelson Station intersection to the proposed access driveways on Wilson Street, the existing trips inbound and outbound from the yard at Nelson Station were redistributed to the intersection at Wilson and the proposed driveways. Figure 8 shows the diverted existing AM peak hour and PM peak hour intersection turning movement volumes.

Phase 1 and Phase 2 Base Conditions

In accordance with the City TIA Guidelines, ambient growth forecasts have been determined using a growth rate of two percent (2%) per year increase to the existing traffic volumes. Traffic volume forecasts were developed by adding project-generated trips and background traffic growth to existing traffic volumes. For Phase 1 and Phase 2 Base conditions, also called Existing Plus Ambient Growth (EAG) conditions, existing volumes were increased by a growth rate of two percent (2%) per year over a five-year period for Phase 1 and a ten-year period for Phase 2. This equates to a total growth factor of approximately 1.10 for Phase 1 and 1.22 for Phase 2. The growth rate was conservatively applied to all movements at the study intersections.

Cumulative Conditions

To account for growth associated with other development projects, trips generated by other pending or approved but unconstructed developments in the City of Jurupa Valley were reviewed and added to the study area as appropriate. The other development trip generation summary is shown in Table 3. The regional ambient growth is assumed to account for any additional trips generated by other developments not specifically listed in Table 3. Figure 9 shows the other development location map.

LEVEL OF SERVICE ANALYSIS & IMPACT EVALUATION

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

Existing

Table 4 shows the study intersection Levels of Service for existing and Existing Plus Project conditions. As shown in Table 4, the study intersections currently operate within acceptable Levels of Service (D or better).

Table 4 also shows that the study intersections are forecast to continue operating within acceptable Levels of Service (D or better) during the peak hours for Existing Plus Project conditions. Therefore, the proposed project is forecast to result in no substantial project-related Level of Service deficiencies at the study intersections during the peak hours for Existing Plus Project conditions.

Phase 1 (Year 2026) Base

Table 5 shows the study intersection Levels of Service for Phase 1 (Year 2026) Base Without and With Project conditions. As shown in Table 5, the study intersections are forecast to operate within acceptable Levels of Service (D or better) for Phase 1 (Year 2026) Base Without and With Project conditions, except for the following study intersection that is forecast to operate at Levels of Service E during the PM peak hour with project:

1. Agua Mansa Road at Wilson Street

Table 5 also evaluates the project impact at the study intersections for Phase 1 (Year 2026) Base With Project. As shown in Table 5, the proposed project is forecast to result in project-related Level of Service deficiency at the intersection of Agua Mansa Road at Wilson Street for Phase 1 (Year 2026) Base With Project conditions without improvement based on the City-established operating requirements.

The intersection of Agua Mansa Road at Wilson Street is forecast to warrant a traffic signal for Phase 1 (Year 2026) Base With Project conditions. Therefore, a traffic signal is to be provided by the proposed project to reduce the project-related deficiency and maintain acceptable Levels of Service in accordance with the City of Jurupa Valley operating requirements.

Phase 1 (Year 2026) Cumulative

Table 5 also shows the study intersection Levels of Service for Phase 1 (Year 2026) Cumulative Without and With Project conditions. As shown in Table 5, the study intersections are forecast to operate within acceptable Levels of Service (D or better) for Phase 1 (Year 2026) Cumulative Without and With Project conditions, except for the following study intersection that is forecast to operate at Levels of Service F during the PM peak hour with project:

1. Agua Mansa Road at Wilson Street

As shown in Table 5, the proposed project is forecast to result in a project-related Level of Service deficiency at the intersection of Agua Mansa Road at Wilson Street for Phase 1 (Year 2026) Cumulative With Project conditions without improvements based on the City-established operating requirements.

The previously identified improvement to install a traffic signal at the intersection of Agua Mansa Road and Wilson Street would also address the project's operational deficiency for Phase 1 (Year 2026) Cumulative With Project conditions; no additional improvements are necessary.

Phase 2 (Year 2031) Base

Table 6 shows the study intersection Levels of Service for Phase 2 (Year 2031) Base Without and With Project conditions. As shown in Table 6, the study intersections are forecast to operate within acceptable Levels of Service (D or better) for Phase 2 (Year 2031) Base Without and With Project conditions, except for following study intersection that is forecast to operate at Levels of Service F during the PM peak hour with project:

1. Agua Mansa Road at Wilson Street

Table 6 also evaluates the project impact at the study intersections for Phase 2 (Year 2031) Base With Project. As shown in Table 6, the proposed project is forecast to result in a project-related Level of Service deficiency at the intersection of Agua Mansa Road at Wilson Street for Phase 2 (Year 2031) Base With Project conditions without improvements based on the City-established operating requirements.

The previously identified improvement to install a traffic signal at the intersection of Agua Mansa Road and Wilson Street would also address the project's operational deficiency for Phase 2 (Year 2031) Cumulative With Project conditions; no additional improvements are necessary.

Phase 2 (Year 2031) Cumulative

Table 6 also shows the study intersection Levels of Service for Phase 2 (Year 2031) Cumulative Without and With Project conditions. As shown in Table 6, the study intersections are forecast to operate within acceptable Levels of Service (D or better) for Phase 2 (Year 2031) Cumulative Without and With Project conditions, except for the following study intersection that is forecast to operate at Level of Service E during the PM peak hour without project and Level of Service F during the AM and PM peak hours with project:

1. Agua Mansa Road at Wilson Street

As shown in Table 6, proposed project is forecast to result in a project-related Level of Service deficiency at the intersection of Agua Mansa Road at Wilson Street for Phase 2 (Year 2031) Cumulative With Project conditions without improvements based on the City-established operating requirements.

The previously identified improvement to install a traffic signal at the intersection of Agua Mansa Road and Wilson Street would also address the project's operational deficiency for Phase 2 (Year 2031) Cumulative With Project conditions; no additional improvements are necessary.

TRAFFIC SIGNAL WARRANT ANALYSIS

The need for potential installation of a traffic signal at the deficient, unsignalized study intersection of Agua Mansa Road at Wilson Street was evaluated based on the California Manual on Uniform Traffic Control Devices (2014), Section 4C.04, peak hour volume warrant graphs (Warrant 3). Traffic signal warrant analysis worksheets are provided in Appendix E.

Based on the traffic signal peak hour volume warrant, a traffic signal is forecast to be warranted at the intersection of Agua Mansa Road at Wilson Street for Phase 1 (Year 2026) Base With Project and Phase 2 (Year 2031) Base With Project conditions.

SITE ACCESS & ON-SITE CIRCULATION

Project Design Features

This analysis assumes the following improvements will be constructed by the project to provide project site access:

2. Project West Driveway (NS) at Wilson Street (EW)

- Install southbound stop control.
- Construct the driveway approach to consist of one shared left/right turn lane.

3. Project Central Driveway (NS) at Wilson Street (EW)

- Install southbound stop control.
- Construct the driveway approach to consist of one shared left/right turn lane.

4. Project East Driveway (NS) at Wilson Street (EW)

- Install southbound stop control.
- Construct the driveway approach to consist of one shared left/right turn lane.

This analysis also assumes the project shall comply with the following conditions as part of the City of Jurupa Valley standard development review process to ensure adequate geometric design and emergency access:

- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of Jurupa Valley.
- All on-site and off-site roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project shall be constructed in accordance with applicable State/Federal engineering standards and to the satisfaction of the City of Jurupa Valley.
- The final grading, landscaping, and street improvement plans shall demonstrate that sight distance requirements are met in accordance with applicable City of Jurupa Valley/California Department of Transportation sight distance standards.
- A construction work site traffic control plan shall comply with State standards set forth in the California *Manual of Uniform Traffic Control Devices* and shall be submitted to the County for review and approval prior to the issuance of a grading permit or start of construction. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

Intersection Queuing Analysis

As shown in Table 7, the project site access locations are forecast to operate within the available storage lengths during the peak hours for the evaluated scenarios conditions, expect for the following intersection turning movement that is currently forecast to experience insufficient storage capacity:

5. Agua Mansa Road (NS) at Market Street (EW)
- Eastbound left turn lane

The following improvements are necessary to provide sufficient storage capacity at the intersection of Agua Mansa Road and Market Street:

5. Agua Mansa Road (NS) at Market Street (EW)
- Add one additional eastbound left turn lane¹
 - Add southbound right turn overlap signal phasing

¹ Addition of a second eastbound left turn lane also requires an additional receiving lane along northbound Agua Mansa Road.

As this location currently needs improvement under Existing conditions, the project's impact is considered indirect. The project should contribute toward future improvements through the City's Development Impact Fee (DIF) program.

Summary

In addition to the above-mentioned project access driveway improvements, the project shall install a traffic signal at the currently unsignalized study intersection of Agua Mansa Road and Wilson Street. The new traffic signal at Agua Mansa Road and Wilson Street should be coordinated with the adjacent signal of Agua Mansa Road and Market Street to prevent additional queueing issues at the intersection of Agua Mansa Road at Market Street.

CONCLUSION

Phase 1 of the proposed project is forecast to generate approximately 84 additional daily trips, including 25 additional trips during the AM peak hour and 30 additional trips during the PM peak hour, which equates to approximately 156 daily PCE trips, including 49 PCE trips during the AM peak hour and 52 PCE trips during the PM peak hour.

Phase 2 of the proposed project is forecast to generate a total of approximately 139 additional daily trips (inclusive of Phase 1 trips), including 33 additional trips during the AM peak hour and 49 net new trips during the PM peak hour, which equates to a total of approximately 213 daily PCE trips, including 57 PCE trips during the AM peak hour and 60 PCE trips during the PM peak hour.

The study intersections are forecast to operate within acceptable Levels of Service for the scenarios analyzed, except for the intersection of Agua Mansa Road at Wilson Street.

The proposed project is forecast to result in project-related Level of Service deficiency at the Agua Mansa Road at Wilson Street intersection for Phase 1 (Year 2026) Base With Project conditions without improvements based on the City-established operating requirements. The intersection of Agua Mansa Road at Wilson Street is forecast to warrant a traffic signal for Phase 1 (Year 2026) Base With Project conditions. Therefore, a traffic signal is to be provided by the proposed project to reduce the project-related deficiency and maintain acceptable Levels of Service in accordance with the City of Jurupa Valley operating requirements for Phase 1 (Year 2026) Base With Project conditions and subsequent analysis scenarios.

The project should contribute toward future improvements at the intersection of Agua Mansa Road and Market Street through the City's Development Impact Fee (DIF) program.

Figure 10 shows the lane geometry and intersection traffic controls for existing conditions and the recommended improvements identified.

Mr. Gary Koontz, Facility Project Manager
BURRTEC WASTE INDUSTRIES, INC
December 3, 2021

We appreciate the opportunity to assist you on this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Sincerely,
GANDDINI GROUP, INC.



Perrie Ilercil, P.E. (AZ)
Senior Engineer



Giancarlo Ganddini, PE, PTP
Principal

Table 1
Riverside Hauling Staff and Shifts

Type	Classification	Shift	Total	Early Morning (prior 7AM)		AM Peak Hours (7-9AM)			Mid-day (9-4AM)		PM Peak Hours (4-6AM)			Evening (after 6PM)		Daily
				IN	OUT	IN	OUT	Total	IN	OUT	IN	OUT	Total	IN	OUT	
Staff	Drivers	1st Shift 5-6	93	48		45		45				85	85		8	186
Staff	Mechanics	1st Shift 5-6	3	3				0				3	3			6
Staff	Supervisor	1st Shift 5-6	3	3				0				3	3			6
Staff	Office	1st Shift 8-5	14			14		14				14	14			28
Staff	Mechanics	2nd Shift 12-12	22					0	22				0		22	44
Trucks	Front End Loaders	Commercial	30		30			0	9		18		18	3		60
Trucks	Roll-off Trucks	Cst/Comm	18		18			0	6		11		11	1		36
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	6		3			0	3	3	3		3			12
Trucks	Side Loader	Residential	45		0		45	45	14		27		27	4		90
Current Existing Total				54	51	59	45	104	54	3	59	105	164	8	30	468
Operational Increases 0-5 Years																
Staff	Drivers	1st Shift 5-6	18	6		12		12				16	16		2	36
Staff	Mechanics	1st Shift 5-6	1	1				0				1	1			2
Staff	Supervisor	1st Shift 5-6	1	1				0				1	1			2
Staff	Office	1st Shift 8-5	1			1		1				1	1			2
Staff	Mechanics	2nd Shift 12-12	3					0	3				0		3	6
Trucks	Front End Loaders	Commercial	1		1			0	0		1		1	0		2
Trucks	Roll-off Trucks	Cst/Comm	2		2			0	1		1		1	0		4
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	3		1			0	1	2	2		2			6
Trucks	Side Loader	Residential	12		0		12	12	4		7		7	1		24
0- 5 Year Total				8	4	13	12	25	9	2	11	19	30	1	5	84
Operational Increases 6-10 Years																
Staff	Drivers	1st Shift 5-6	12	8		4		4				11	11		1	24
Staff	Mechanics	1st Shift 5-6	1	1				0				1	1			2
Staff	Supervisor	1st Shift 5-6		0				0				0	0			0
Staff	Office	1st Shift 8-5				0		0				0	0			0
Staff	Mechanics	2nd Shift 12-12	3					0	3				0		3	6
Trucks	Front End Loaders	Commercial	3		3			0	1		2		2	0		6
Trucks	Roll-off Trucks	Cst/Comm	2		2			0	1		1		1	0		4
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	3		1			0	1	2	2		2			6
Trucks	Side Loader	Residential	4		0		4	4	1		2		2	0		7
6-10 Year Total				9	6	4	4	8	7	2	7	12	19	0	4	55
Future Total				71	61	76	61	137	70	7	77	136	213	9	39	607
Net New Trips				17	10	17	16	33	16	4	18	31	49	1	9	139

Table 2
Project Trip Generation by Vehicle Type

Trips by Type	AM Peak Hours (7-9AM)			PM Peak Hours (4-6AM)			Daily
	IN	OUT	Total	IN	OUT	Total	
Trips by Volume							
Operational Increases 0-5 Years (Phase 1):							
Subtotal - Staff Trips	13	0	13	0	19	19	48
Subtotal - Truck Trips	0	12	12	11	0	11	36
Phase 1 Total	13	12	25	11	19	30	84
Operational Increases 6-10 Years (Phase 2):							
Subtotal - Staff	4	0	4	0	12	12	32
Subtotal - Trucks	0	4	4	7	0	7	23
Phase 2 Total	4	4	8	7	12	19	55
Net New Trips	17	16	33	18	31	49	139

Trips by Type	PCE	AM Peak Hours (7-9AM)			PM Peak Hours (4-6AM)			Daily
		IN	OUT	Total	IN	OUT	Total	
Trips by Passenger Car Equivalent (PCE)								
Operational Increases 0-5 Years (Phase 1):								
Subtotal - Staff Trips	1.0	13	0	13	0	19	19	48
Subtotal - Truck Trips	3.0	0	36	36	33	0	33	108
Phase 1 Total (PCE)		13	36	49	33	19	52	156
Operational Increases 6-10 Years (Phase 2):								
Subtotal - Staff	1.0	4	0	4	4	0	4	32
Subtotal - Trucks	3.0	0	4	4	0	4	4	25
Phase 2 Total (PCE)		4	4	8	4	4	8	57
Subtotal - Staff Trips		17	0	17	4	19	23	80
Subtotal - Truck Trips		0	40	40	33	4	37	133
Net New Trips (PCE)		17	40	57	37	23	60	213

Table 3 (1 of 2)
Other Development Trip Generation

Other Development		Land Use	Source	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
ID	Name/Address					In	Out	Total	In	Out	Total	
J1	1500 Rubidoux Blvd MA16170	Industrial Park	ITE 130	4261.000	TSF	1,173	276	1,449	319	1,130	1,449	14,360
		Business Park	ITE 770	200.000	TSF	230	40	270	63	181	244	2,488
J2	Agua Mansa & Hall	Warehousing	ITE 150	334.523	TSF	44	13	57	17	43	60	572
J3	5190 Wilson MA20251	Recycling Facility	ITE 110 [a]	10.000	TSF	7	0	7	1	6	7	49
J4	Rio Vista Specific Plan	Single-Family Detached Housing	ITE 210	120	DU	22	62	84	71	42	113	1,132
		Multifamily Housing (Low-Rise, Not Close to Rail Transit)	ITE 220	123	DU	12	37	49	40	23	63	829
		Business Park	ITE 770	100.000	TSF	115	20	135	32	90	122	1,244
J5	SE Rubidoux & Market	General Light Industrial	ITE 110	25.000	TSF	16	3	19	2	14	16	122
J6	20th and Caterpillar	Business Park	ITE 770	306.394	TSF	352	62	414	97	277	374	3,812
J7	SEC Rubidoux & 24th	General Light Industrial	ITE 110	63.000	TSF	41	6	47	6	35	41	307
J8	Mira Loma Logistics	Warehousing	ITE 150	1300.000	TSF	170	51	221	66	168	234	2,223
J9	Rubidoux (26-28th St)	General Light Industrial	ITE 110	32.700	TSF	21	3	24	3	18	21	159
J10	2610 Rubidoux Blvd	General Light Industrial	ITE 110	42.132	TSF	27	4	31	4	23	27	205
J11	2700 Hall Ave	Solar Farm (74 AC)	[b]	3	EMP	3	0	3	0	3	3	7
J12	1890 Market St	Strip Retail Plaza (<40k)	ITE 822	13.558	TSF	19	13	32	45	44	89	738
J13	725 Hall Ave	Automobile Care Center	ITE 942 [c]	7.659	TSF	11	6	17	11	13	24	267
J14	2780 Rubidoux	General Light Industrial	ITE 110	72.288	TSF	47	6	53	7	40	47	352
J15	725 Hall Ave	Automobile Care Center	ITE 942 [c]	7.659	TSF	11	6	17	11	13	24	267
J15	Rubidoux & 28th	Automobile Care Center	ITE 942	0.200	TSF	0	0	0	0	1	1	11
J16	NE Rubidoux & 28th	General Light Industrial	ITE 110	190.594	TSF	124	17	141	17	107	124	928
J17	SEC LaRue & Canal	Multifamily Housing (Low-Rise, Not Close to Rail Transit)	ITE 220	80	DU	8	24	32	26	15	41	539
J18	SW Canal & 28th St	Single-Family Detached Housing	ITE 210	184	DU	33	96	129	109	64	173	1,735

Table 3 (2 of 2)
Other Development Trip Generation

Other Development		Land Use	Source	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
ID	Name/Address					In	Out	Total	In	Out	Total	
J19	Avalon & Kenwood Pl	Single-Family Detached Housing	ITE 210	215	DU	39	112	151	127	75	202	2,027
J20	Canal & Kenwood Pl	Single-Family Detached Housing	ITE 210	97	DU	18	50	68	57	34	91	915
		Single-Family Attached Housing	ITE 215	118	DU	18	39	57	38	29	67	850
J21	SE Rubidoux & 34th	Single-Family Detached Housing	ITE 210	18	DU	3	10	13	11	6	17	170
		Single-Family Attached Housing	ITE 215	18	DU	3	6	9	6	4	10	130
J22	NWC Avalon and 36th	Single-Family Detached Housing	ITE 210	24	DU	4	13	17	14	9	23	226
J24	NE Canal & Sierra Avenue	Single-Family Detached Housing	ITE 210	398	DU	72	207	279	236	138	374	3,753
TOTAL TRIPS GENERATED						2,640	1,182	3,822	1,436	2,642	4,078	40,409

Notes:

(1) ITE = Institute of Transportation Engineers *Trip Generation Manual* (11th Edition, 2021); ### = Land Use Code. All rates based on General Urban/Suburban rates, unless otherwise noted.

[a] = Square footage of development estimated because of incomplete application description.

[b] = High Desert Solar Project Initial Study and Mitigated Negative Declaration (ECorp Consulting, Inc., May 2019). This study was for a 581-acre/ 108-Mwatt solar farm. Estimated number of employees to operate farm is three to five (3-5). Three employees is use for as a minimum to forecast trips for this type of facility.

[c] = San Diego Association of Governments (SANDAG) *Vehicular Traffic Generation Rates* (April 2002). Where the daily or peak hour rate is not provided by ITE, the SANDAG percentage of peak hour to daily rate is used to calculate the missing data. Where the peak hour distribution is not provided by ITE, the SANDAG peak hour distribution is used.

(2) TSF = Thousand Square Feet.

Table 4
Existing Plus Project Intersection Levels of Service Assessment

Unsignalized Intersections														
ID	Study Intersection	Traffic Control ¹	Existing				Existing Plus Project				AM Peak Hour		PM Peak Hour	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Deficient LOS?	Signal Warranted?	Deficient LOS?	Signal Warranted?
			Delay ²	LOS ³	Delay ²	LOS	Delay ²	LOS ³	Delay ²	LOS				
	1. Agua Mansa Rd at Wilson St	CSS	16.8	C	20.7	C	18.2	C	33.6	D	NO	NO	NO	NO
	2. Project West Driveway at Wilson St	CSS	-	-	-	-	8.8	A	9.0	A	NO	NO	NO	NO
	3. Project Central Driveway at Wilson St	CSS	-	-	-	-	8.5	A	8.7	A	NO	NO	NO	NO
	4. ProjectEast Driveway at Wilson St	CSS	-	-	-	-	8.5	A	8.7	A	NO	NO	NO	NO

Notes:

(1) CSS = Cross Street Stop

(2) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.

(3) LOS = Level of Service

Table 5
Phase 1 (Year 2026) Intersection Level of Service Assessment

ID	Study Intersection	Traffic Control ¹	Phase 1 (Year 2026) Base Without Project (EAG)				Phase 1 (Year 2026) Base With Project (EAGp)				AM Peak Hour		PM Peak Hour	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Change	Project Impact?	Change	Project Impact?
			Delay ²	LOS ³	Delay ²	LOS	Delay ²	LOS ³	Delay ²	LOS				
1.	Agua Mansa Rd at Wilson St	CSS	18.8	C	24.6	C	20.6	C	45.3	E	+1.8	NO	+20.7	YES
	With Improvements	TS	5.6	A	7.3	A	11.5	B	11.7	B	+5.9	NO	+4.4	NO
2.	Project West Driveway at Wilson	CSS	-	-	-	-	8.8	A	9.0	A	+8.8	NO	+9.0	NO
3.	Project Central Driveway at Wilson	CSS	-	-	-	-	8.5	A	8.8	A	+8.5	NO	+8.8	NO
4.	Project East Driveway at Wilson St	CSS	-	-	-	-	8.5	A	8.7	A	+8.5	NO	+8.7	NO

ID	Study Intersection	Traffic Control ¹	Phase 1 (Year 2026) Cumulative Without Project (EAGC)				Phase 1 (Year 2026) Cumulative With Project (EAGCp)				AM Peak Hour		PM Peak Hour	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Change	Project Impact?	Change	Project Impact?
			Delay ²	LOS ³	Delay ²	LOS	Delay ²	LOS ³	Delay ²	LOS				
1.	Agua Mansa Rd at Wilson St	CSS	24.1	C	32.9	D	29.4	D	85.5	F	+5.3	NO	+52.6	YES
	With Improvements	TS	5.4	A	7.3	A	16.0	B	16.0	B	+10.6	NO	+8.7	NO
2.	Project West Driveway at Wilson	CSS	-	-	-	-	8.8	A	9.0	A	+8.8	NO	+9.0	NO
3.	Project Central Driveway at Wilson	CSS	-	-	-	-	8.5	A	8.8	A	+8.5	NO	+8.8	NO
4.	Project East Driveway at Wilson St	CSS	-	-	-	-	8.5	A	8.8	A	+8.5	NO	+8.8	NO

Notes:

(1) TS = Traffic Signal; CSS = Cross Street Stop

(2) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.

(3) LOS = Level of Service

Table 6
Phase 2 (Year 2031) Intersection Level of Service Assessment

ID	Study Intersection	Traffic Control ¹	Phase 2 (Year 2031) Base Without Project (EAG)				Phase 2 (Year 2031) Base With Project (EAGp)				AM Peak Hour		PM Peak Hour	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Change	Project Impact?	Change	Project Impact?
			Delay ²	LOS ³	Delay ²	LOS	Delay ²	LOS ³	Delay ²	LOS				
1.	Agua Mansa Rd at Wilson St	CSS	21.5	C	30.5	D	25.7	D	77.1	F	+4.2	NO	+46.6	YES
	With Improvements	TS	5.6	A	7.8	A	11.3	B	11.7	B	+5.7	NO	+3.9	NO
2.	Project West Driveway at Wilson	CSS	-		-		8.8	A	9.0	A	+8.8	NO	+9.0	NO
3.	Project Central Driveway at Wilson	CSS	-		-		8.5	A	8.8	A	+8.5	NO	+8.8	NO
4.	Project East Driveway at Wilson S	CSS	-		-		8.6	A	8.8	A	+8.6	NO	+8.8	NO

ID	Study Intersection	Traffic Control ¹	Phase 2 (Year 2031) Cumulative Without Project (EAGC)				Phase 2 (Year 2031) Cumulative With Project (EAGCp)				AM Peak Hour		PM Peak Hour	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		Change	Project Impact?	Change	Project Impact?
			Delay ²	LOS ³	Delay ²	LOS	Delay ²	LOS ³	Delay ²	LOS				
1.	Agua Mansa Rd at Wilson St	CSS	28.6	D	43.9	E	54.3	F	90.5	F	+25.7	YES	+46.6	YES
	With Improvements	TS	5.5	A	7.9	A	15.8	B	16.1	B	+10.3	NO	+8.2	NO
2.	Project West Driveway at Wilson	CSS	-		-		8.8	A	9.1	A	+8.8	NO	+9.1	NO
3.	Project Central Driveway at Wilson	CSS	-		-		8.5	A	8.8	A	+8.5	NO	+8.8	NO
4.	Project East Driveway at Wilson S	CSS	-		-		8.6	A	8.8	A	+8.6	NO	+8.8	NO

Notes:

- (1) TS = Traffic Signal; CSS = Cross Street Stop
- (2) Delay is shown in seconds per vehicle. For intersections with traffic signal or all way stop control, overall average intersection delay and LOS are shown. For intersections with cross street stop control, LOS is based on average delay of the worst minor street approach or major street left turn movement.
- (3) LOS = Level of Service

Table 7 (1 of 2)
Study Area Queueing Analysis Summary

ID	Intersection	Approach	Lane	Storage Length (Feet) ²	Queue Length (Feet) ¹						Adequate Storage Provided			Project Contribution ³
					Existing		Opening Base Year (2026) With Project		Opening Year (2031) With Project					
					AM	PM	AM	PM	AM	PM	Existing	2026	2031	
1.	Agua Mansa Rd at Wilson St	Northbound	Thru	390	-	-	-	-	-	-	YES	YES	YES	
		Northbound	Right	35	-	-	-	-	-	-	YES	YES	YES	
		Southbound	Left	160	-	-	<20	<20	<20	<20	YES	YES	YES	
		Southbound	Thru	290	-	-	-	-	-	-	YES	YES	YES	
		Westbound	Left	215	<20	<20	40	105	120	160	YES	YES	YES	
		Westbound	Right	660	<20	<20	<20	<20	<20	25	YES	YES	YES	
2.	Project West Driveway at Wilson St	Southbound	Left	50	-	-	<20	<20	<20	<20	YES	YES	YES	
		Eastbound	Left	90	-	-	<20	<20	<20	<20	YES	YES	YES	
		Westbound	Right	700	-	-	-	-	-	-	YES	YES	YES	
3.	Project Central Driveway at Wilson St	Southbound	Left	50	-	-	-	<20	-	<20	YES	YES	YES	
		Eastbound	Left	90	-	-	-	-	-	-	YES	YES	YES	
		Westbound	Right	120	-	-	-	-	-	-	YES	YES	YES	
4.	ProjectEast Driveway at Wilson St	Southbound	Left	50	-	-	-	<20	<20	<20	YES	YES	YES	
		Eastbound	Left	90	-	-	-	-	-	-	YES	YES	YES	
		Westbound	Right	700	-	-	-	-	-	-	YES	YES	YES	
5.	Agua Mansa Rd at Market St	Northbound	shared	350	<20	<20	<20	<20	<20	<20	YES	YES	YES	3.0%
		Southbound	left-thru	310	85	205	135	230	170	290	YES	YES	YES	
		Southbound	Right	310	65	100	25	105	90	170	YES	YES	YES	
		Eastbound	Left	415	275	590	310	755	445	935	NO-590	NO-760	NO-940	
		Eastbound	Thru	200	120	115	135	130	145	175	YES	YES	YES	
		Eastbound	Right	75	-	-	-	-	-	-	YES	YES	YES	
		Westbound	Left	75	-	-	-	-	-	-	YES	YES	YES	
		Westbound	Thru	1850	225	435	275	530	375	625	YES	YES	YES	
		Westbound	Right	75	-	-	-	-	-	-	YES	YES	YES	

Table 7 (2 of 2)
Study Area Queueing Analysis Summary

ID	Intersection	Approach	Lane	Storage Length (Feet) ²	Queue Length (Feet) ¹						Adequate Storage Provided			Project Contribution ³
					Existing		Opening Base Year (2026) With Project		Opening Year (2031) With Project					
					AM	PM	AM	PM	AM	PM	Existing	2026	2031	
WITH IMPROVEMENTS														
1.	Agua Mansa Rd at Wilson St With Improvements	Northbound	Thru	390	-	-	45	160	225	175	YES	YES	YES	
		Northbound	Right	35	-	-	<20	<20	<20	<20	YES	YES	YES	
		Southbound	Left	160	-	-	25	35	25	45	YES	YES	YES	
		Southbound	Thru	290	-	-	90	110	245	285	YES	YES	YES	
		Westbound	Left	215	-	-	90	135	105	115	YES	YES	YES	
		Westbound	Right	660	-	-	40	40	25	40	YES	YES	YES	
5.	Agua Mansa Rd at Market St With Improvements	Northbound	shared	350	-	-	<20	<20	<20	<20	YES	YES	YES	
		Southbound	left-thru	310	-	-	135	175	165	285	YES	YES	YES	
		Southbound	Right ⁴	310	-	-	165	130	105	135	YES	YES	YES	
		Eastbound	Left ⁴	415	-	-	140	265	175	345	YES	YES	YES	
		Eastbound	Thru	200	-	-	135	135	150	150	YES	YES	YES	
		Eastbound	Right	75	-	-	-	-	-	-	YES	YES	YES	
		Westbound	Left	75	-	-	-	-	-	-	YES	YES	YES	
		Westbound	Thru	1850	-	-	240	360	290	460	YES	YES	YES	
		Westbound	Right	75	-	-	-	-	-	-	YES	YES	YES	

Notes:

- (1) Queue length based on 1 foot per vehicle for turning movement peak hour volumes.
- (2) Length of turning lane storage or distance to the adjacent driveway (existing or proposed future development).
- (3) Where the existing storage does not provide the recommended storage length and the project contributes trips to the movement, the percent by volume of the project trips is shown.
- (4) The recommended improvements to improve the queueing analysis for the Agua Mansa Road at Market Street includes EB dual turn lane and SB right turn overlap.



Legend

- # Study Intersection
- # Project Driveway

Figure 1
Project Location Map

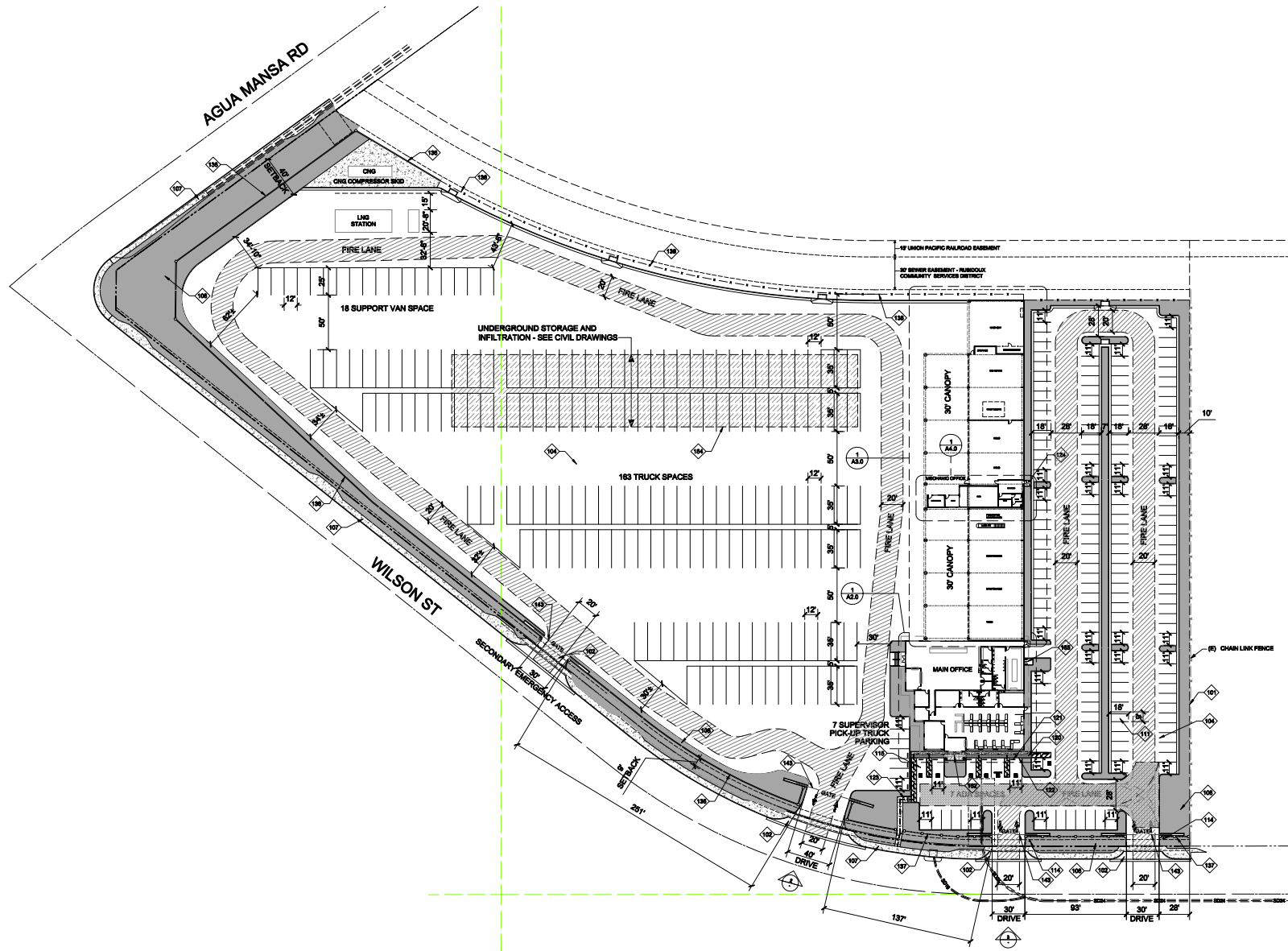
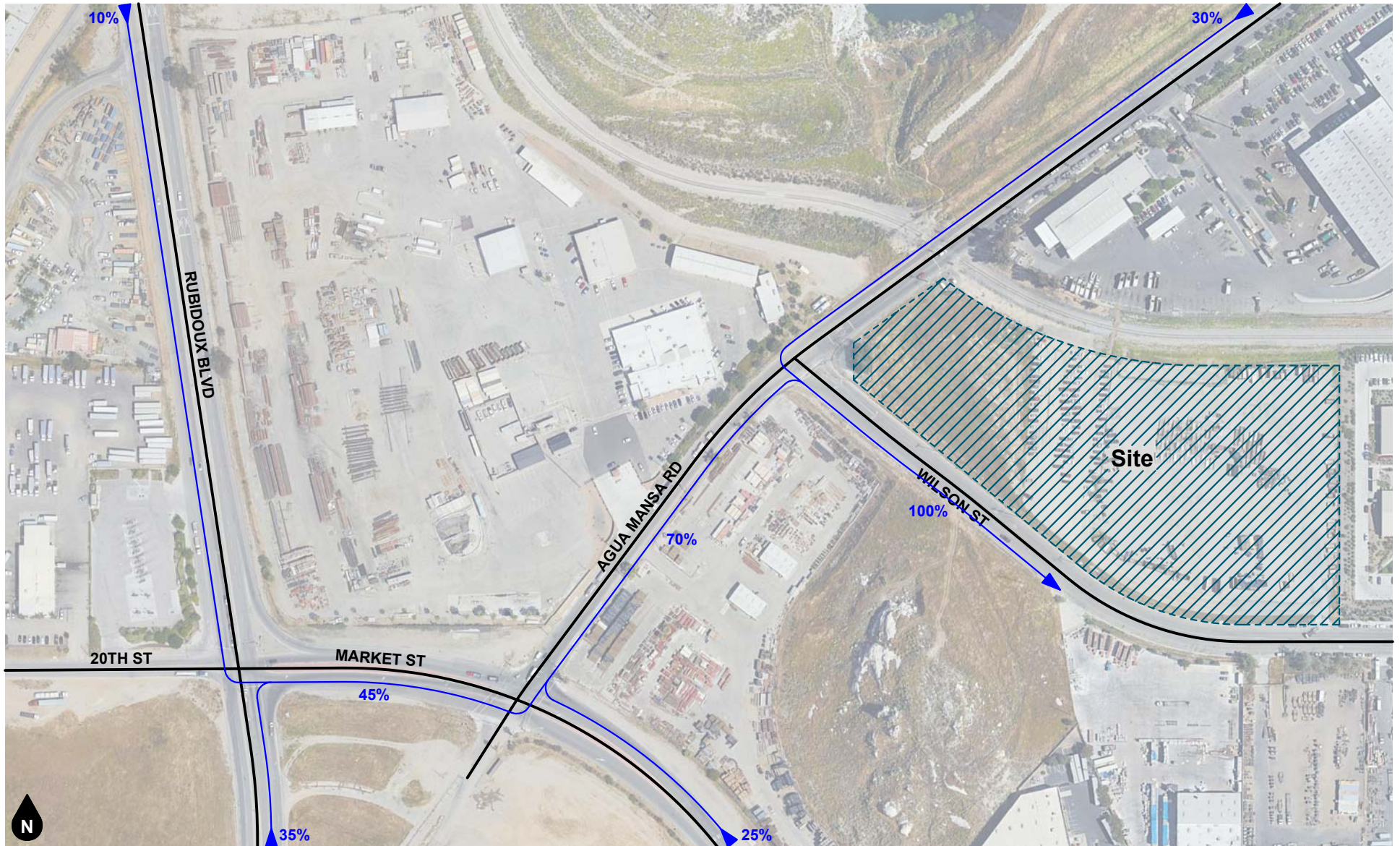


Figure 2
Site Plan



Legend
 ← 10% Percent From Project

Figure 3
Project Outbound Trip Distribution



Legend
 ← 10% Percent To Project

Figure 4
Project Inbound Trip Distribution

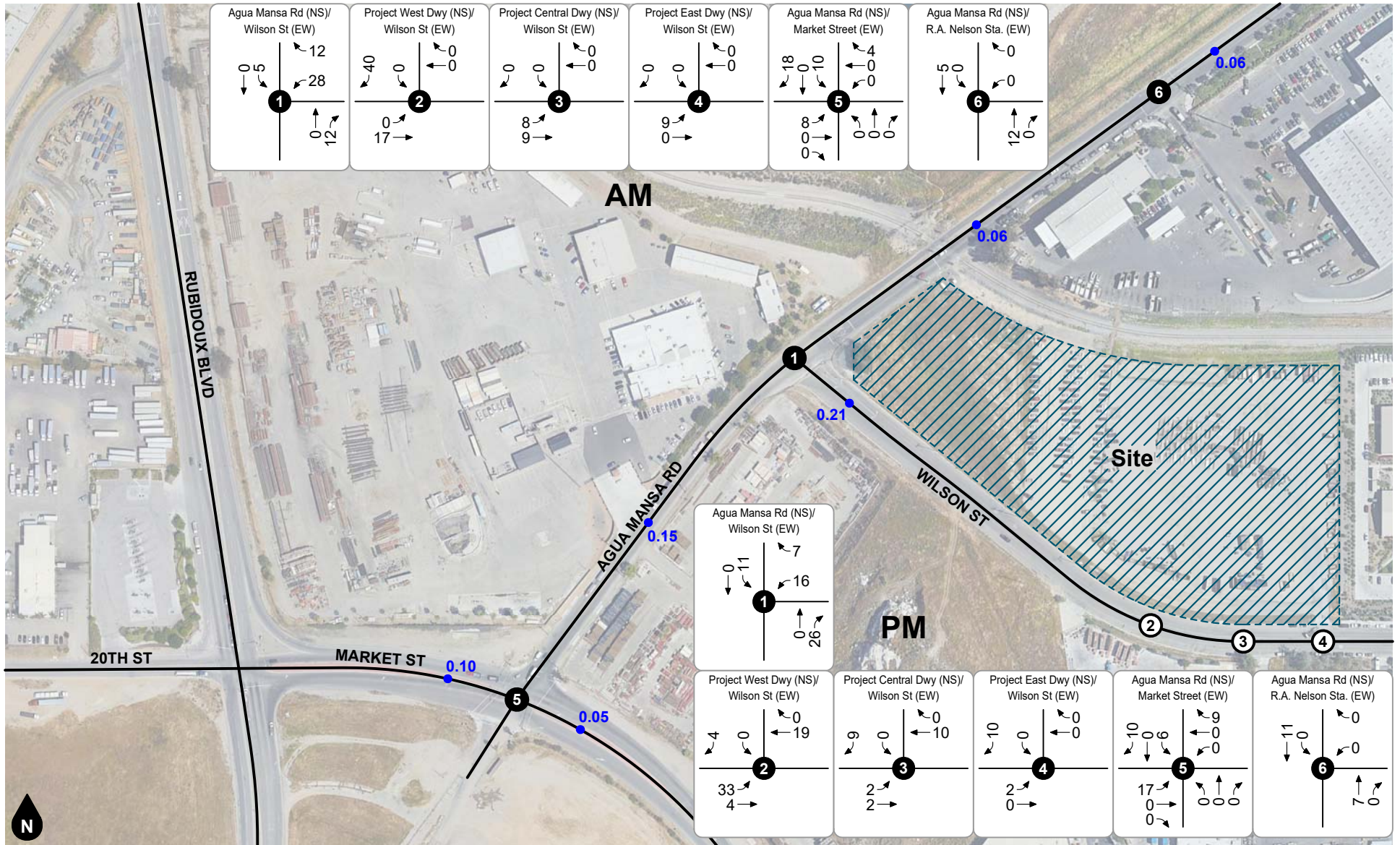


Figure 5
Project Average Daily Traffic and
Peak Hour Turning Movement Volumes

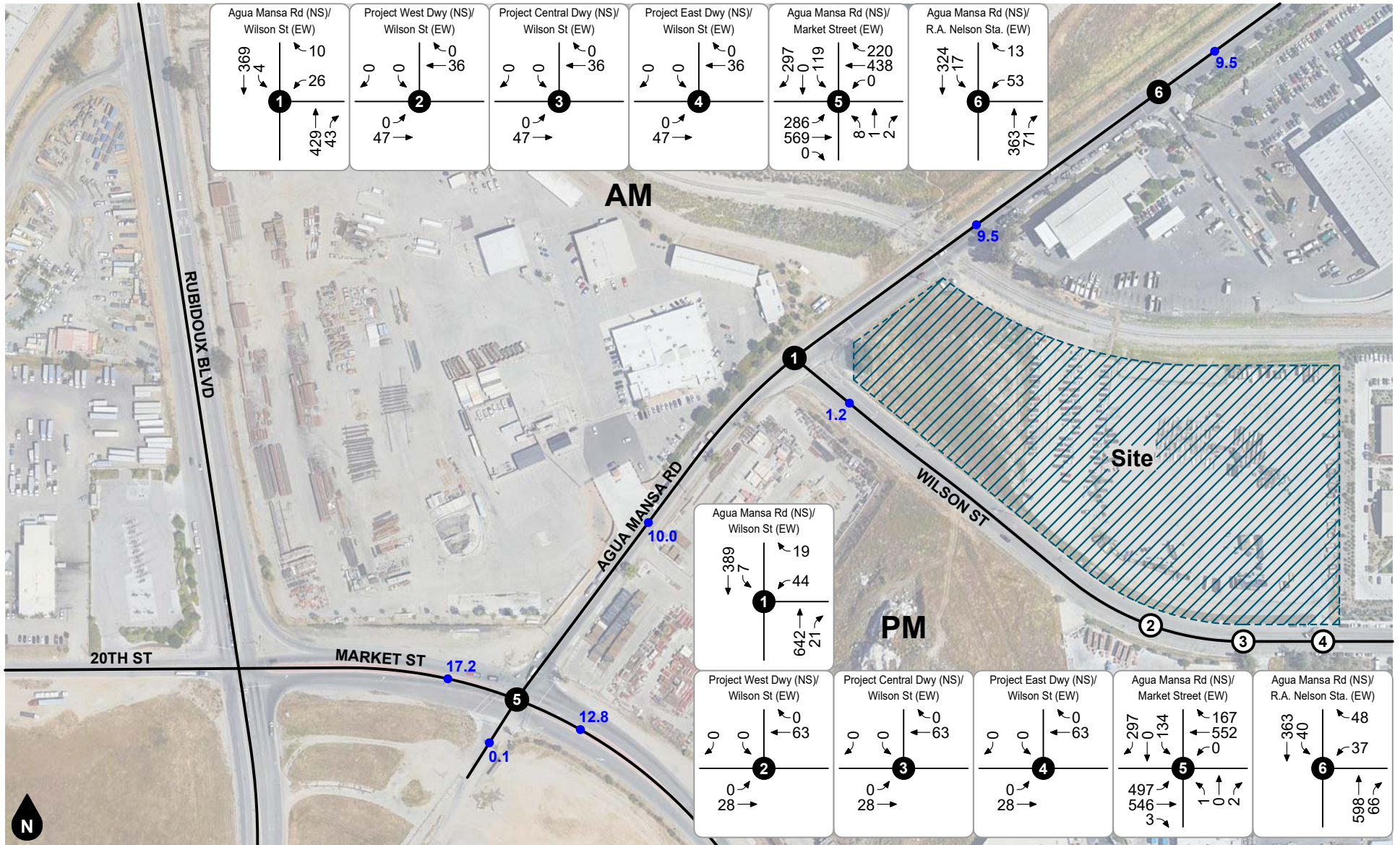
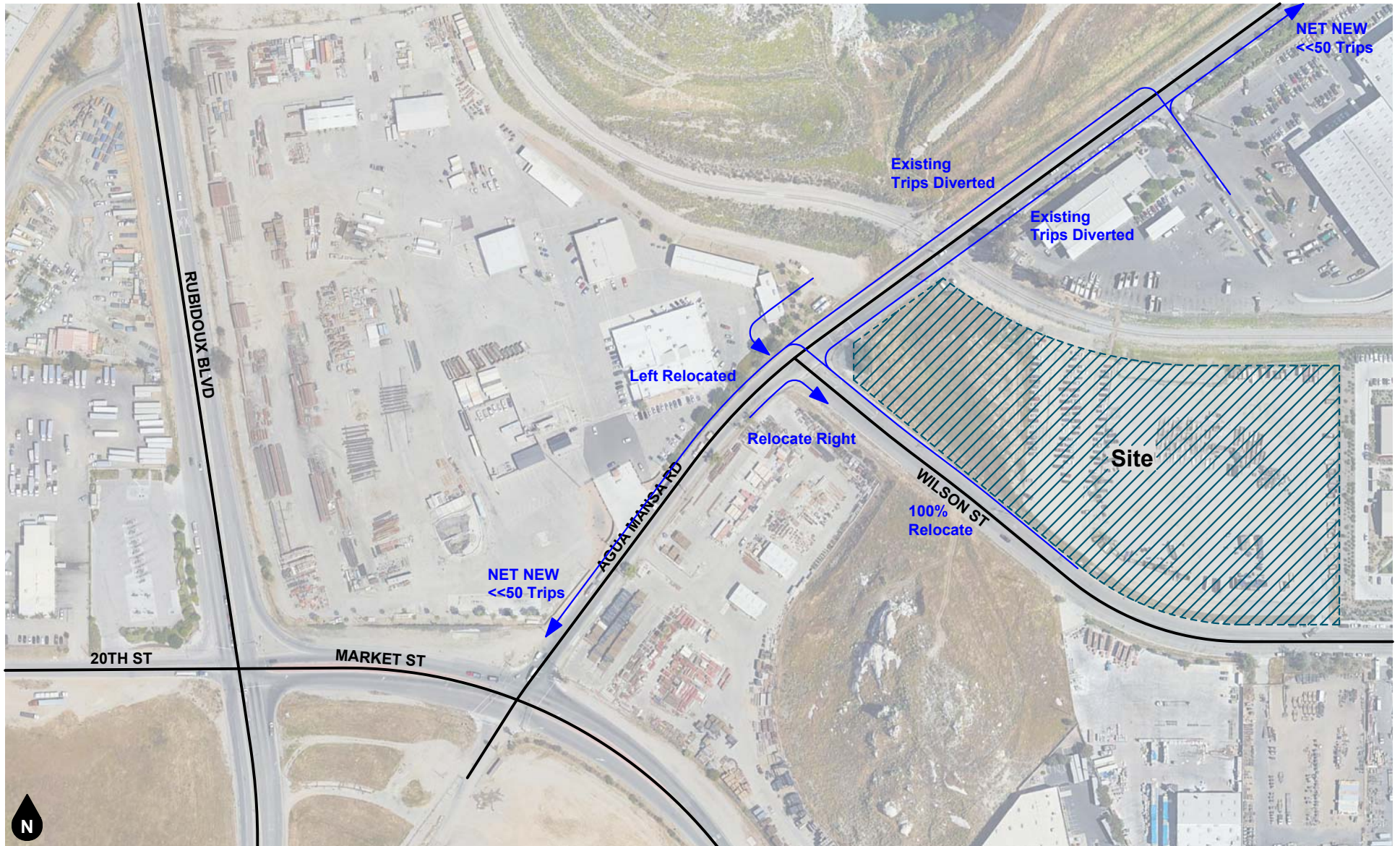


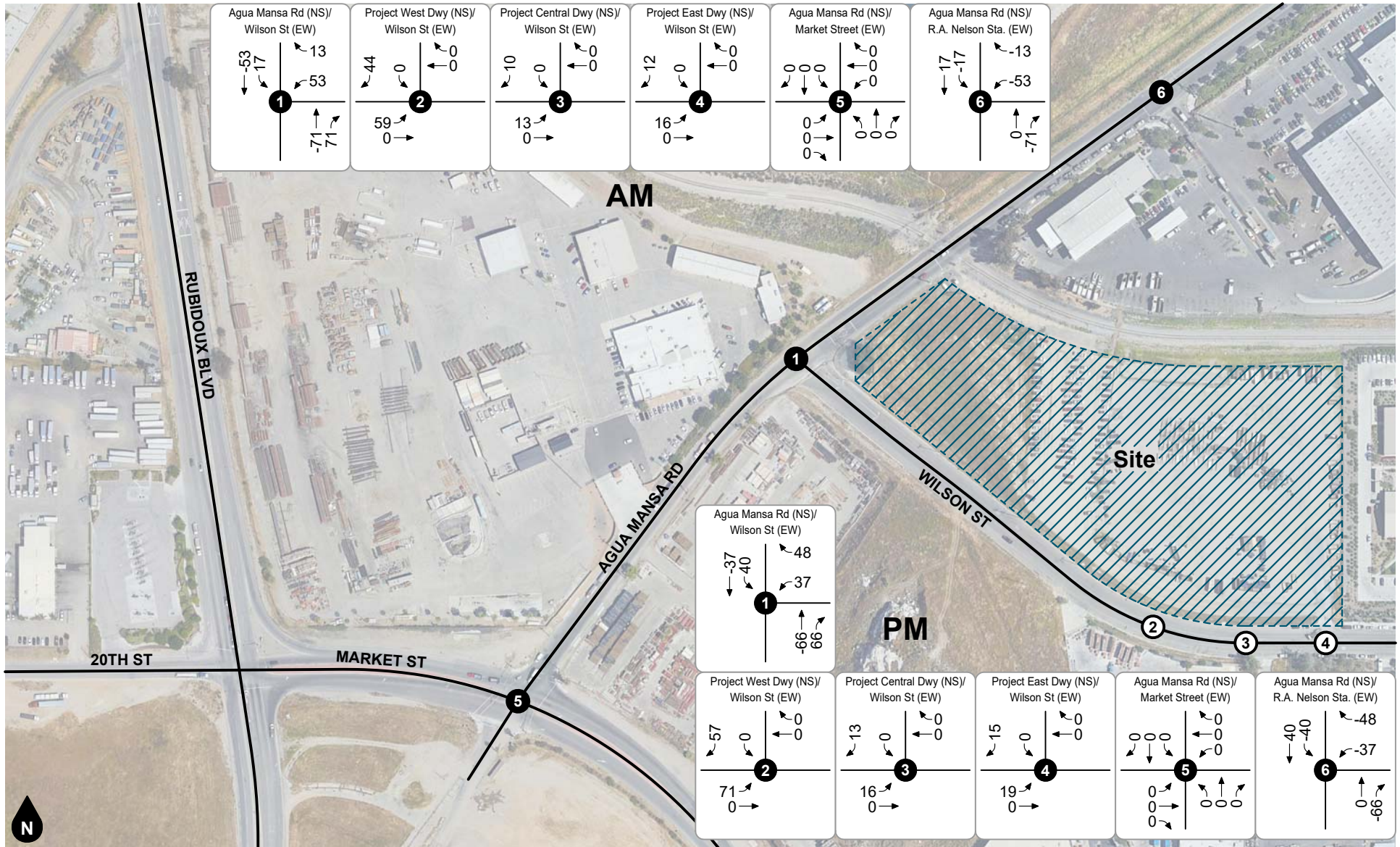
Figure 6
Existing Average Daily Traffic and
Peak Hour Turning Movement Volumes



Legend

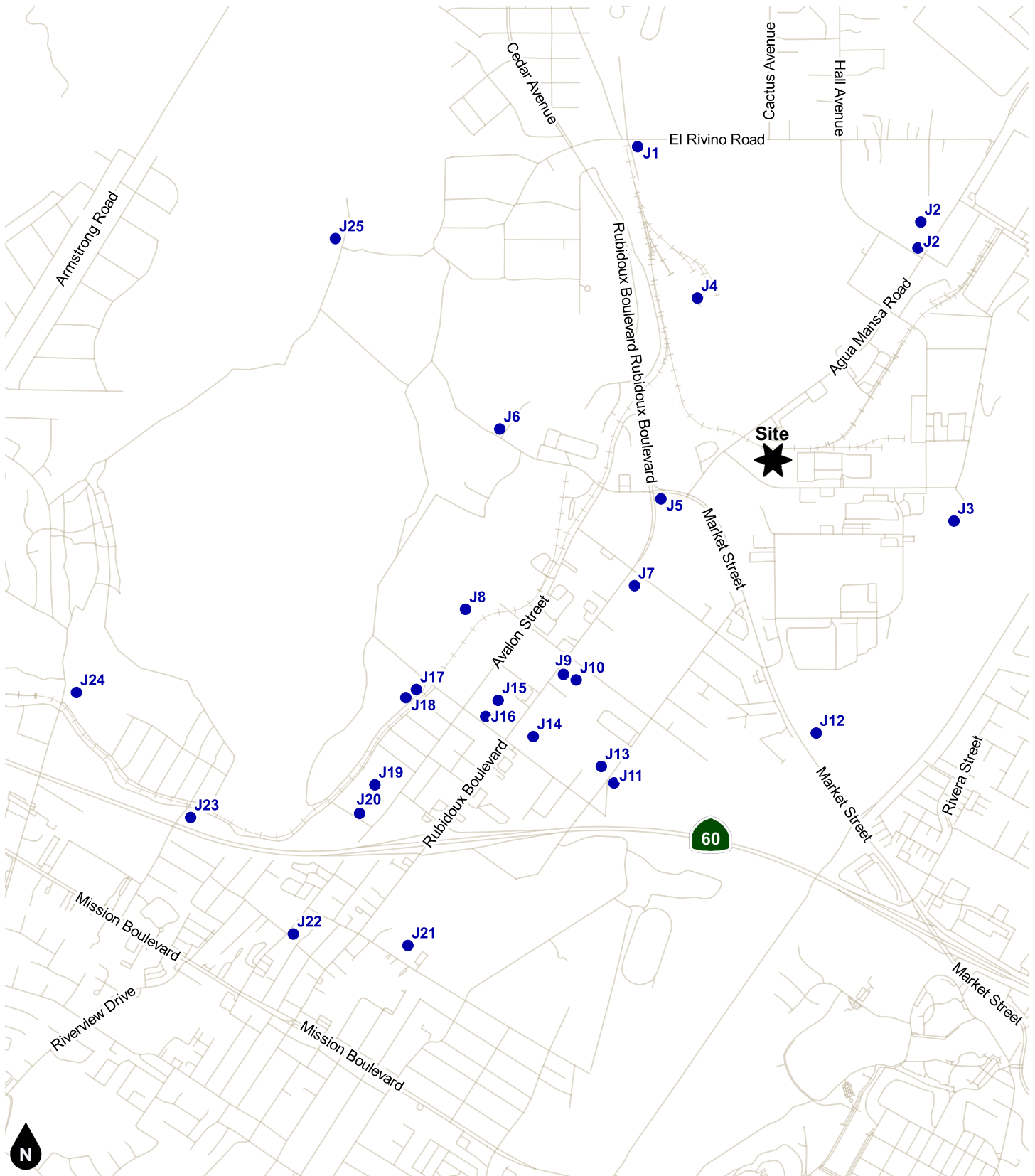
← 10% Percent To/From Project

Figure 7
Project Diverted Trip Distribution



- Legend**
- # Study Intersection
 - # Project Driveway

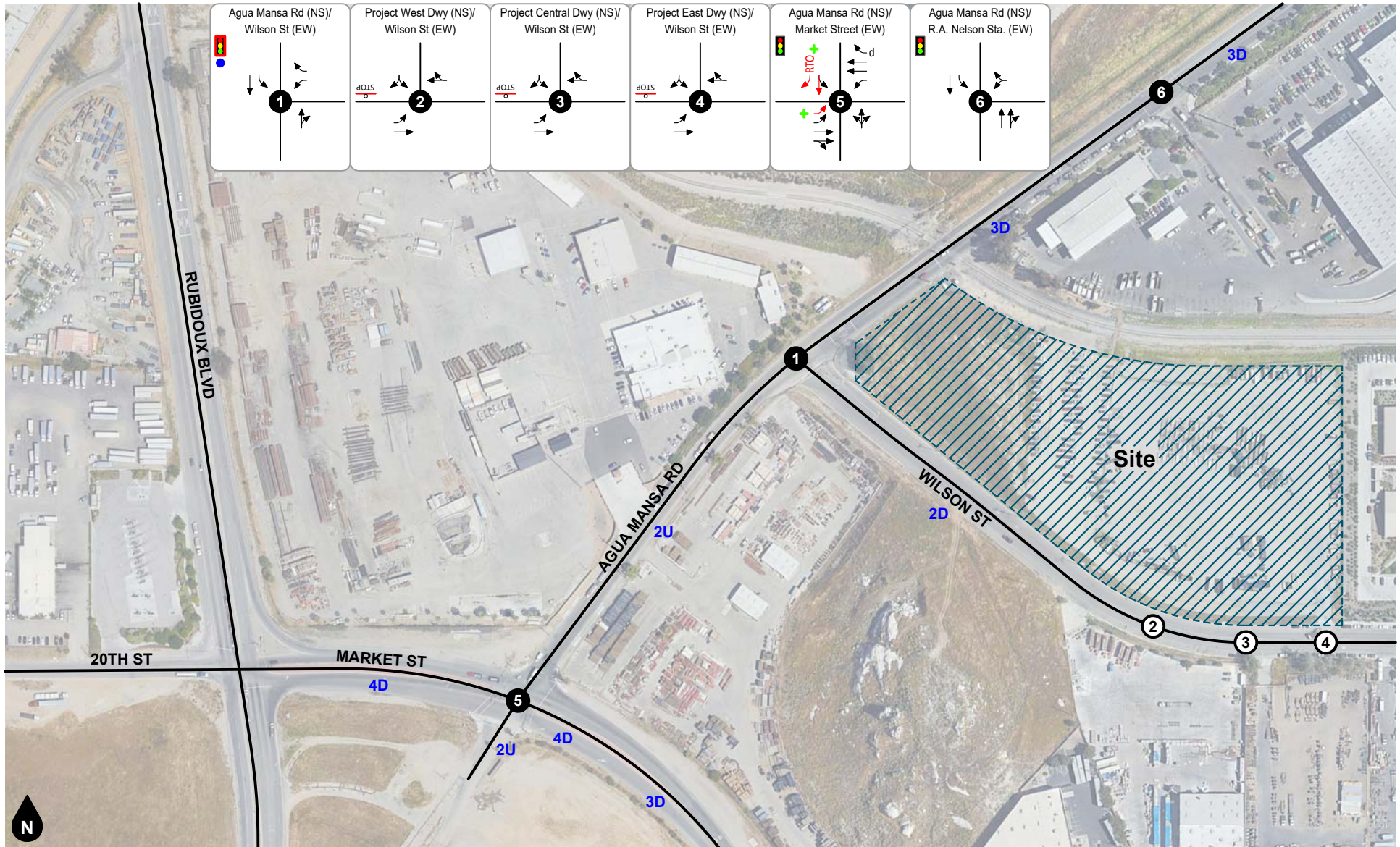
Figure 8
Diverted AM and PM Peak Hour Turning Movement Volumes



Legend

- # Other Development ID in:
- City of Jurupa Valley

Figure 9
Other Development Location Map



Legend

Traffic Signal

All Way Stop

Stop Sign

#Lane Divided Roadway

#Lane Undivided Roadway

Existing Lane

RTO Right Turn Overlap

De Facto Right Turn Lane

Project Improvement

Cumulative Improvement

Figure 10
Recommended Lane Geometry and Intersection Traffic Controls

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APPENDICES

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Appendix C	Traffic Count Worksheets
Appendix D	Level of Service Worksheets
Appendix E	Traffic Signal Warrant Analysis Worksheets

APPENDIX A

GLOSSARY

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
GFA	Gross Floor Area
LOS	Level of Service
PCE	Passenger Car Equivalent
SP	Service Population
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

ACTUATED SIGNAL CONTROL: A type of traffic signal control in which display of each phase depends on whether the corresponding phase detector has registered a service call or the phase is on recall.

ACTUATION: Detection of a roadway user that is forwarded to the signal controller.

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CALL: An indication within a signal controller that a particular phase is waiting for service, either through actuation from a roadway user or phase recall.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass through a roadway facility during a specified period.

CHANNELIZATION: The separation of conflicting traffic movements by use of pavement markings, raised curbs, or other suitable means to facilitate free flow movement.

CLEARANCE INTERVAL: Equal to the yellow plus all-red time, if any, when a traffic signal changes between phases (i.e., the amount of time between the end of a green light from one movement to the beginning of a green light for the next).

COORDINATED SIGNAL CONTROL: A type of traffic signal control in which non-coordinated phases associated with minor movements are constrained such that the coordinated phases are served at a specific time during the signal cycle, thus maintaining the efficient progression of traffic flow along the major roadway.

CONTROL DELAY: The portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign). It includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay.

CORDON: An imaginary boundary line around or across a study area across which vehicles, persons, or other information can be collected for survey and analytical purposes.

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic traveling at a given speed to radically alter their speed or trajectory.

CYCLE: A complete sequence of signal indications for all phases.

CYCLE LENGTH: The total time for a traffic signal to complete one full cycle.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The total additional travel time experienced by a roadway user (driver, passenger, bicyclist, or pedestrian) beyond that required to travel at a desired speed.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device used to count or determine the presence of a roadway user.

DESIGN SPEED: A speed used for purposes of designing horizontal and vertical alignments of a highway.

DIRECTIONAL SPLIT: The percent of two-way traffic traveling in a specified direction.

DIVERSION: The rerouting of traffic from a normal path of travel between two points, such as to avoid congestion or perform a secondary trip.

FREE FLOW: Traffic flow that is unaffected by a traffic control and/or or upstream or downstream conditions.

GAP: Time or distance between two vehicles measured from rear bumper of the front vehicle to front bumper of the second vehicle.

GAP ACCEPTANCE: The method by which a driver accepts an available gap in traffic to enter or cross the road.

HEADWAY: Time or distance between two successive vehicles measured from same point on both vehicles (i.e., front bumper to front bumper).

LEVEL OF SERVICE: A grading scale of quantitative performance measures representing the quality of service of a transportation facility or service from an average traveler's perspective.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MULTI-MODAL: More than one mode, such as automobile, transit, bicycle, and pedestrian.

OFFSET: The time interval between the beginning of a traffic signal cycle at one intersection and the beginning of signal cycle an adjacent intersection.

PLATOON: A set of vehicles traveling at similar speed and moving as a general group with clear separation between other vehicles ahead and behind.

PASSENGER CAR EQUIVALENT: A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEDESTRIAN CLEARANCE INTERVAL: Also known as the “Flashing Don’t Walk” interval, it signals the end of pedestrian entry into the crosswalk following the “Walk” indication and provides time for pedestrians who have already entered the crosswalk to finishing crossing.

PEAK HOUR: The hour within a day in which the maximum volume occurs.

PEAK HOUR FACTOR: The peak hour volume divided by the four times the peak 15-minute flow rate. This

PHASE: In traffic signals, the green, yellow, and red clearance intervals assigned to a specified traffic movement.

PRETIMED SIGNAL: A traffic signal operation in which the cycle length, phasing sequence, and phasing times are predetermined and fixed, regardless of actual demand for any given traffic movement. Also known as a fixed time signal.

PROGRESSION: The coordinated movement of vehicles through signalized intersections along a corridor.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

RECALL: A signal phasing operation in which a specified phase places a call to the signal controller each time a conflicting phase is served, thus ensuring the specified phase will be serviced again.

SEMI-ACTUATED CONTROL: A type of traffic signal control in which only the minor movements are provided detection.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queuing to occur.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle traveling at a given speed to bring the vehicle to a stop after an object on the road becomes visible, including reaction and response time.

TRIP OR TRIP END: The one-directional movement of a person or vehicle. Every trip has an origin and a destination at its respective ends (i.e., trip ends). In terms of site trip generation, the same vehicle entering and exiting a site generates two trips: one inbound trip and one outbound trip.

TRIP GENERATION RATE: The rate at which a land use generates trips per the specified land use variable, such per dwelling unit or per thousand square feet.

TRUCK: A heavy motor vehicle generally used for transporting goods.

VEHICLE MILES TRAVELED: A measure of the amount and distance of automobile travel essentially calculated as the sum of each trip times the trip length.

APPENDIX B

SCOPING AGREEMENT

A. City of Jurupa Valley Development Project Scoping Form

This scoping form shall be submitted to the City of Jurupa Valley to assist in identifying infrastructure improvements that may be required to support traffic from the proposed project.

Project Identification:

Case Number:	MA21180
Related Cases:	
SP No.	
EIR No.	
GPA No.	
CZ No.	
Project Name:	Riverside Hauling Yard (Agua Mansa/Wilson)
Project Address:	southeast corner of Agua Mansa Road and Wilson Street
Project Opening Year:	2031
Project Description:	Relocation of all administrative, truck maintenance, and truck/employee parking structures include a 10,275 SF office, a 19,137 SF vehicle maintenance building access from Agua Mansa N of Wilson Street diverted to Wilson S of Agua Mansa

	Consultant:	Developer:
Name:	Ganddini Group, Inc.	BURRTEC WASTE INDUSTRIES, INC
Address:	555 Parkcenter Drive Suite 225 Santa Ana 92705	9890 Cherry Avenue Fontana, California 92335
Telephone:	714-795-3100 ext (103) / 949-257-3126	909-429-4200
Fax/Email:	perrie@ganddini.com / Perrie Ilercil	gkoontz@burrtec.com / Gary Koontz

Trip Generation Information:

Trip Generation Data Source: Existing driveway trips diverted & Project based trips

Current General Plan Land Use:	Proposed General Plan Land Use:
Vacant	
Current Zoning:	Proposed Zoning:
M-H	

Net new proposed trips for non-localized intersections or project driveways.
The adjacent intersection and project driveways will have full project and diverted trips assigned.

	Existing Trip Generation -			Proposed Trip Generation ITE 210		
	In	Out	Total	In	Out	Total
AM Trips	-	-	-	01	00	01
PM Trips	-	-	-	18	31	49

Internal Trip Capture: ☐ Yes ☒ No (- _____ % Trip Discount)

Pass-By Allowance: ☐ Yes ☒ No (- _____ % Trip Discount)

Diverted Trips: X-YES
See Figure 5

City of Jurupa Valley Traffic Impact Analysis Guidelines
November 2020

Potential Screening Checks

Is your project screened from specific analyses?

Is the project screened from LOS assessment?

☒ Yes

☐ No

LOS screening justification (see Pages 2-3 of the guidelines): _____
Based on the activity associated with or the limited trip generation of the project, the project is not required to conduct full traffic impact analysis that includes LOS analysis. However a focused traffic LOS, signal warrant and queuing analysis will be performed for Existing Plus Project conditions at the adjacent intersection of Wilson Street and Agua Mansa Road.

LOS analyses to be conducted for Existing, Project Opening Year Plus Project, and Project Opening Year Plus Project Plus Cumulative conditions.

Is the project screened from VMT assessment?

☒ Yes

☐ No

VMT screening justification (see Pages 13-16 of the guidelines): _____
Based on the net increase in daily trips of less than 250 trips, the project meets the screening criteria and is presumed to have a less than significant impact on VMT; therefore, further VMT analysis is not required. VMT Memorandum prepared for CEQA approval process dated 6/28/2021.

Level of Service Scoping

- Proposed Trip Distribution (Attach Graphic for Detailed Distribution):
- Attach list of Approved and Pending Projects that need to be considered (provided by the Planning Department and adjacent agencies)
- Attach list of study intersections/roadway segments
- Attach site plan
- Other specific items to be addressed:
 - Site access
 - On-site circulation
 - Parking
 - Consistency with Plans supporting Bikes/Peds/Transit
 - Other Analysis to verify that queuing from the Market Street intersection does not queue back to the Wilson Street.
- Date of Traffic Counts new classification counts
- Attach proposed analysis scenarios (years plus proposed forecasting approach)
- Attach proposed phasing approach (if the project is phased)

VMT Scoping

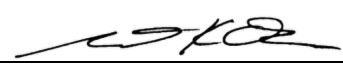
For projects that are not screened, identify the following:

- Travel Demand Forecasting Model Used na
- Attach WRCOG Screening VMT Assessment output or describe why it is not appropriate for use
- Attach proposed Model Land Use Inputs and Assumed Conversion Factors (attach)

Signatures



TIA Preparer: Perrie Ilcercil; 949-257-3126

City (Approved by): 

Date: 09-23-2021 / 10-01-2021

Date: 10/7/21

Table 1
Riverside Hauling Staff and Shifts

Type	Classification	Shift	Total	Early Morning (prior 7AM)		AM Peak Hours (7-9AM)			Mid-day (9-4AM)		PM Peak Hours (4-6AM)			Evening (after 6PM)		Daily
				In	Out	In	Out	Total	In	Out	In	Out	Total	In	Out	
Staff	Drivers	1st Shift 5-6	93	93				0				85	85		8	186
Staff	Mechanics	1st Shift 5-6	3	3				0				3	3			6
Staff	Supervisor	1st Shift 5-6	3	3				0				3	3			6
Staff	Office	1st Shift 8-5	14			14		14				14	14			28
Staff	Mechanics	2nd Shift 12-12	22					0	22				0		22	44
Trucks	Front End Loaders	Commercial	30		30			0	9		18		18	3		60
Trucks	Roll-off Trucks	Cst/Comm	18		18			0	6		11		11	1		36
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	6		3			0	3	3	3		3			12
Trucks	Side Loader	Residential	45		45			0	14		27		27	4		90
Curent Existing Total				99	96	14	0	14	54	3	59	105	164	8	30	468
Operational Increases 0-5 Years																
Staff	Drivers	1st Shift 5-6	18	18				0				16	16		2	36
Staff	Mechanics	1st Shift 5-6	1	1				0				1	1			2
Staff	Supervisor	1st Shift 5-6	1	1				0				1	1			2
Staff	Office	1st Shift 8-5	1			1		1				1	1			2
Staff	Mechanics	2nd Shift 12-12	3					0	3				0		3	6
Trucks	Front End Loaders	Commercial	1		1			0	0		1		1	0		2
Trucks	Roll-off Trucks	Cst/Comm	2		2			0	1		1		1	0		4
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	3		1			0	1	2	2		2			6
Trucks	Side Loader	Residential	12		12			0	4		7		7	1		24
0- 5 Year Total				20	16	1	0	1	9	2	11	19	30	1	5	84
Operational Increases 6-10 Years																
Staff	Drivers	1st Shift 5-6	12	12				0				11	11		1	24
Staff	Mechanics	1st Shift 5-6	1	1				0				1	1			2
Staff	Supervisor	1st Shift 5-6		0				0				0	0			0
Staff	Office	1st Shift 8-5				0		0				0	0			0
Staff	Mechanics	2nd Shift 12-12	3					0	3				0		3	6
Trucks	Front End Loaders	Commercial	3		3			0	1		2		2	0		6
Trucks	Roll-off Trucks	Cst/Comm	2		2			0	1		1		1	0		4
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	3		1			0	1	2	2		2			6
Trucks	Side Loader	Residential	4		4			0	1		2		2	0		7
6-10 Year Total				13	10	0	0	0	7	2	7	12	19	0	4	55
Future Total				132	122	15	0	15	70	7	77	136		9	39	607
Net New Trips				33	26	1	0	1	16	4	18	31	49	1	9	139



Legend
 # Study Intersection

Figure 1
Project Location Map

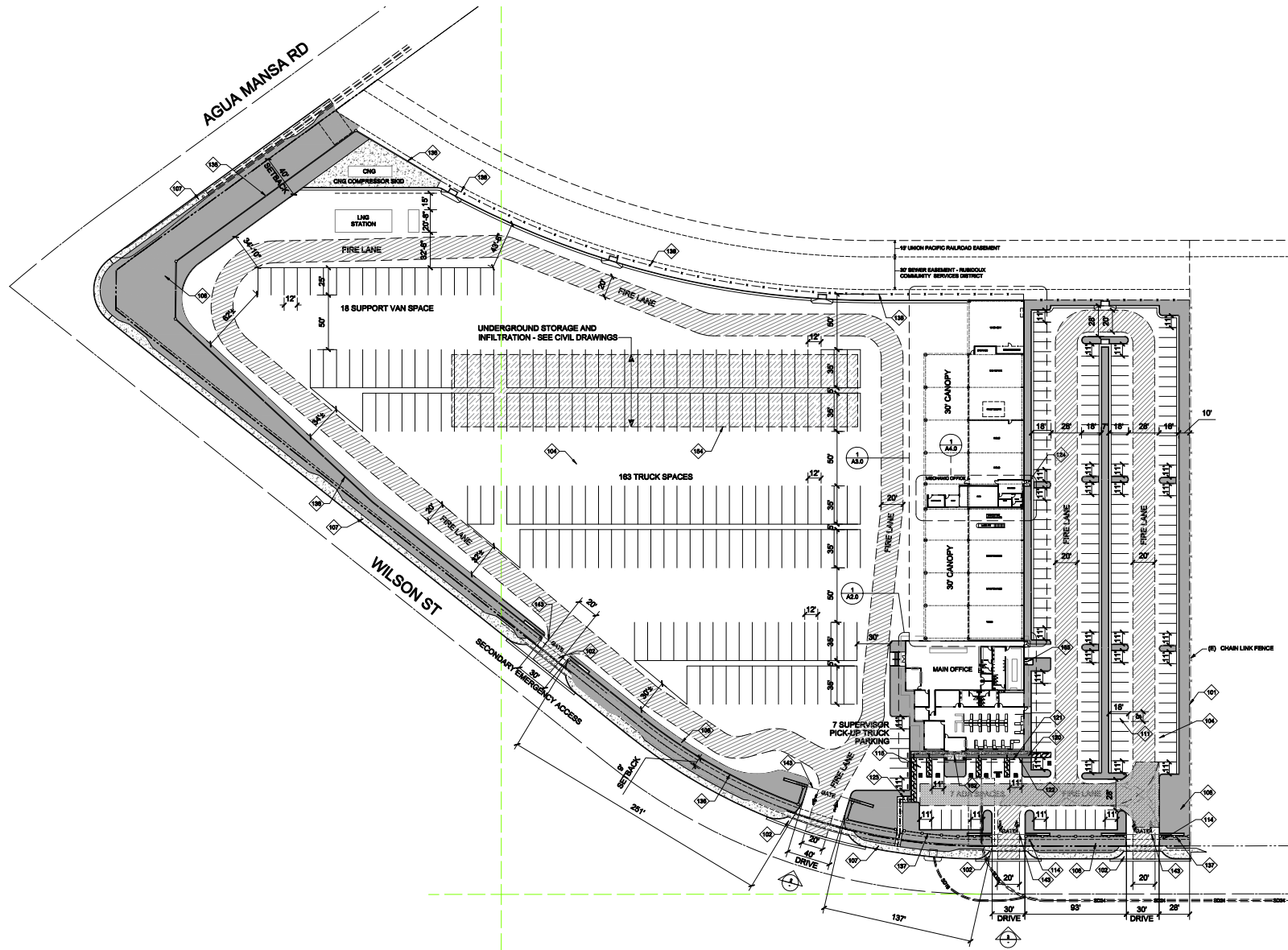
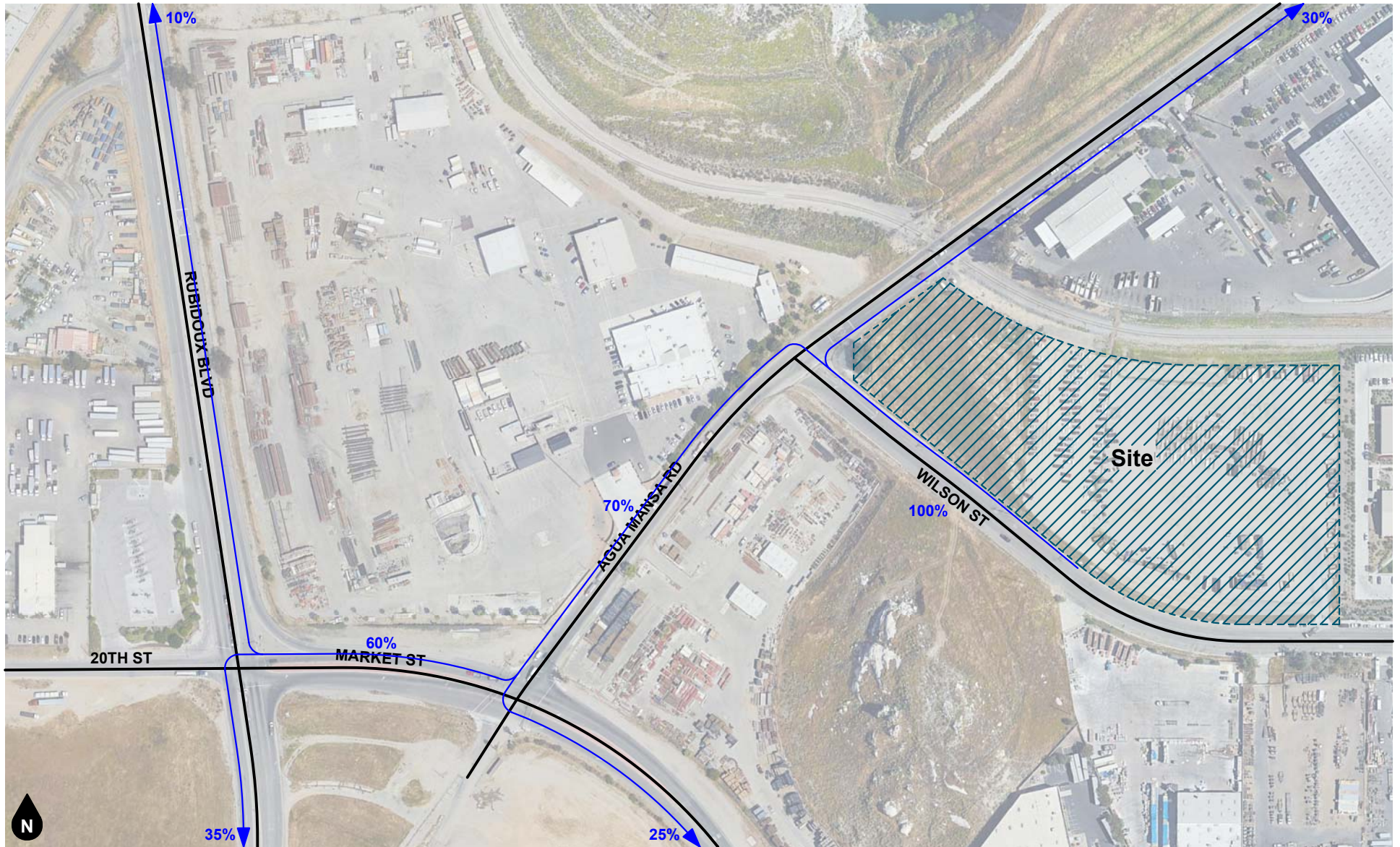


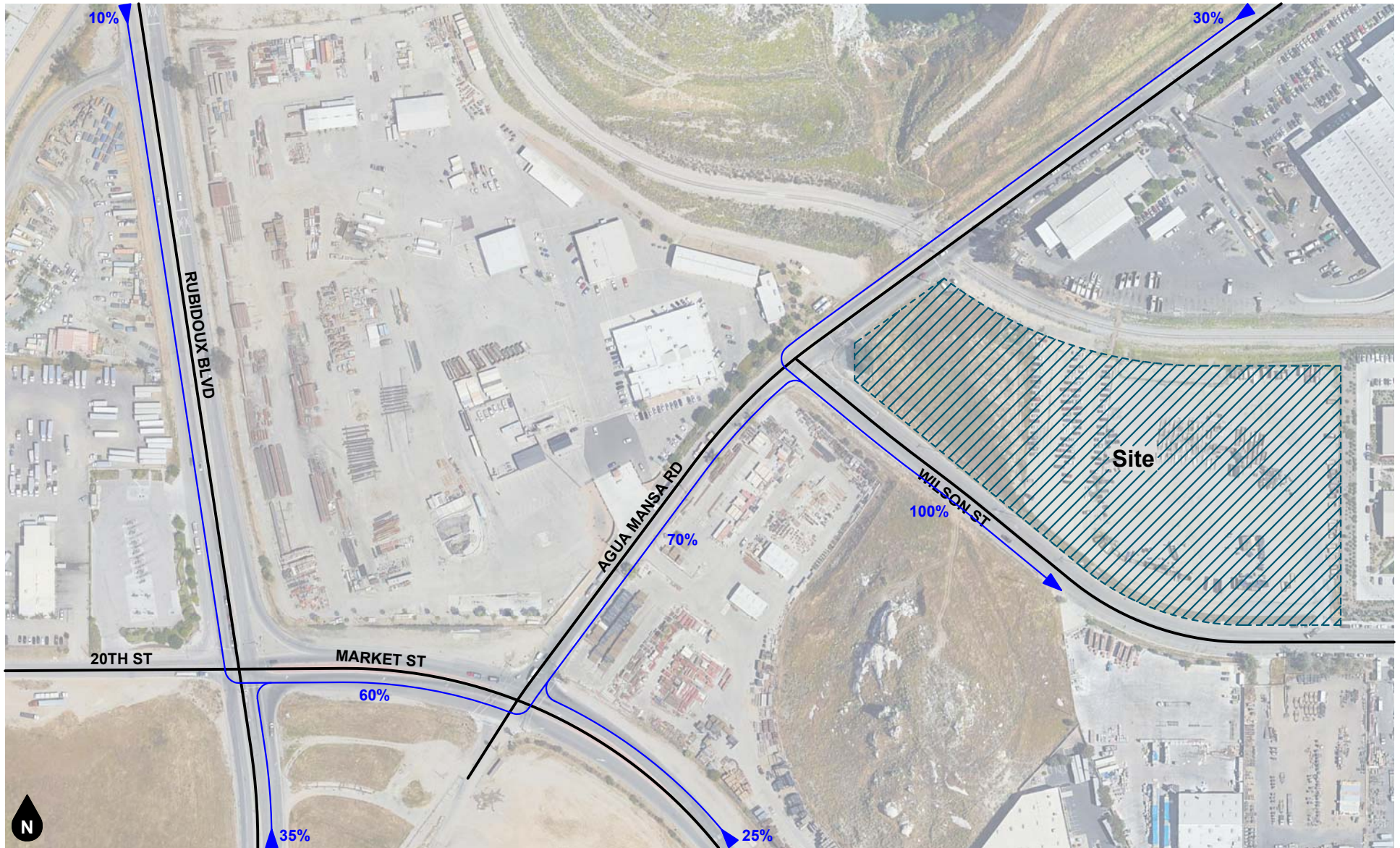
Figure 2
Site Plan



Legend

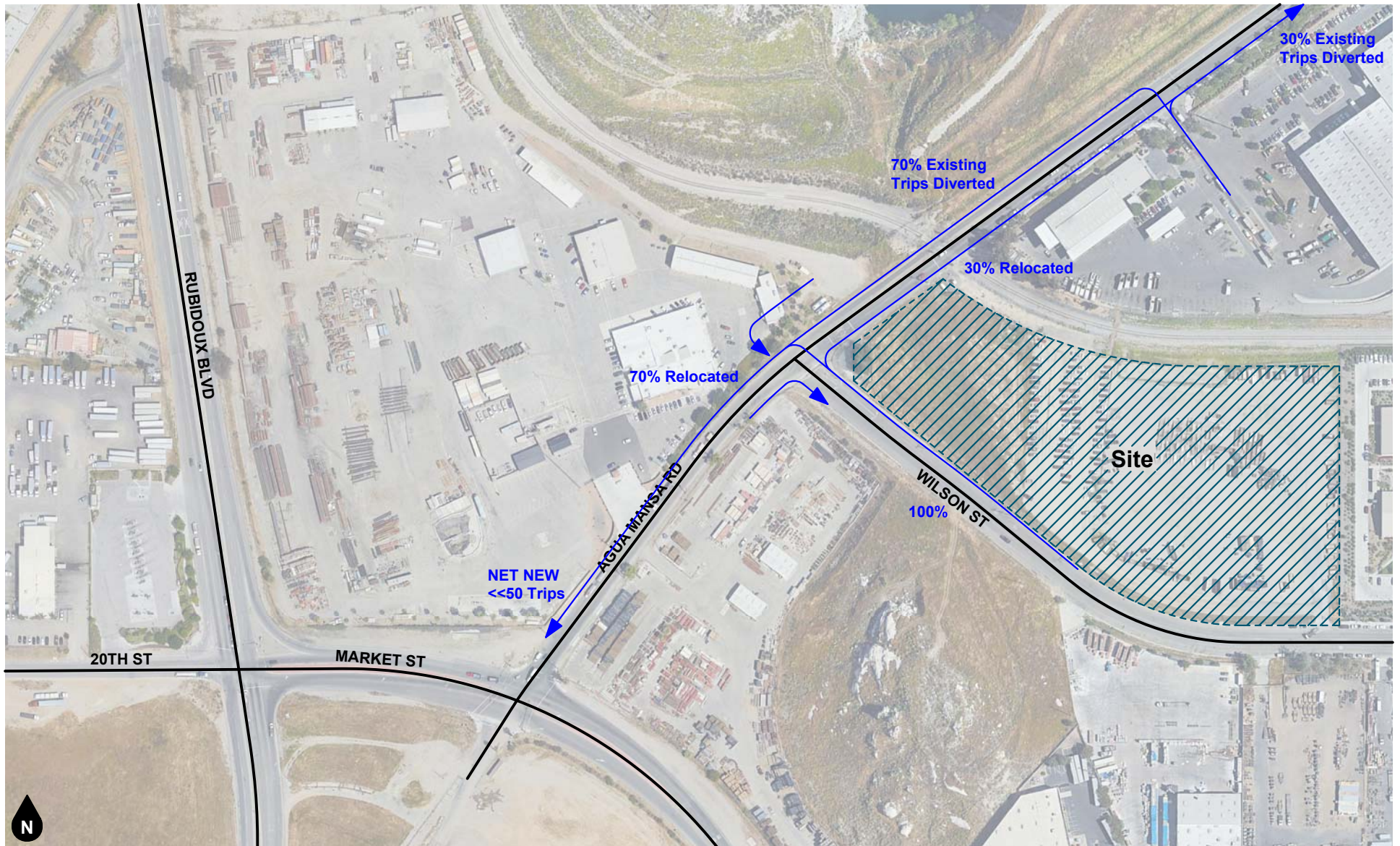
← 10% Percent From Project

Figure 3
Project Outbound Trip Distribution



Legend
 ← 10% Percent To Project

Figure 4
Project Inbound Trip Distribution



Legend
 10% Percent To/From Project

Figure 5
Project Diverted Trip Distribution

ATTACHMENT A

TRIP GENERATION AND VMT ASSESSMENT LETTER



June 28, 2021

Mr. Gary Koontz, Facility Project Manager
BURRTEC WASTE INDUSTRIES, INC.
9890 Cherry Avenue
Fontana, California 92335

RE: Riverside Hauling Yard (Agua Mansa/Wilson) Trip Generation & Vehicle Miles Traveled Screening Assessment
Project No. 19393

Dear Mr. Koontz:

Ganddini Group, Inc. is pleased to provide this Trip Generation & Vehicle Miles Traveled Screening Assessment for the proposed Riverside Hauling Yard (Agua Mansa/Wilson) in the City of Jurupa Valley. This assessment includes a trip generation calculation for the proposed project and determines whether further Level of Service (LOS) or Vehicle Miles Traveled (VMT) analysis is necessary based on City of Jurupa Valley requirements. We trust the findings of this analysis will aid you and the City of Jurupa Valley in assessing the project.

PROJECT DESCRIPTION

The approximately 10-acre project site is located at the southeast corner of Agua Mansa Road and Wilson Street in the City of Jurupa Valley, California. An existing Burrtec Waste Industrial yard is located immediately north of the project site at the RA Nelson Material Recovery Facility (MRF)/Transfer Station. The proposed project involves relocation of all administrative, truck maintenance, and truck/employee parking to the proposed project site. Proposed structures include a 10,275 square foot office, a 19,137 square foot vehicle maintenance building and parking spaces for the following: 180 standard, 7 ADA, 163 trash truck, 18 maintenance van and 7 maintenance trucks.

Vehicular employee and truck parking access for the existing Burrtec Waste Industrial yard will relocate from the Agua Mansa Road at R.A. Nelson Station intersection to the proposed truck and employee parking access driveways on Wilson Street. All trash, recycling, and green waste processing will continue to be processed through the existing RA Nelson MRF/Transfer Station. The proposed site plan is shown in Attachment A.

The project will not increase employees or trucks with the relocation of administrative, truck maintenance, and truck/employee parking to the proposed project site.

EXISTING OPERATIONS

An existing Burrtec Waste Industrial yard operates from 5:00 AM to midnight. Current staffing and shift hours are shown below:

- Collection drivers (99) and Yard supervisors (3) work from 5:00 AM to 6:00 PM.
- Yard mechanics (25) operate from 5:00 AM to midnight in two-shifts.
- Office staff (14) works from 8:00 AM to 5:00 PM.

Mr. Gary Koontz, Facility Project Manager
BURRTEC WASTE INDUSTRIES, INC.
June 28, 2021

Currently, 99 trucks provide residential and commercial waste collection service for the cities of Riverside, Jurupa Valley and Rialto. Commercial and residential collection trucks leave the yard by 6:00 AM. Riverside and Jurupa Valley trucks return to the existing RA Nelson MRF/Transfer Station for processing of all trash, recycling, and green waste. However, Rialto trash trucks dump at the Mid-Valley Landfill in Rialto, and do not return until the end of the day.

FUTURE OPERATIONS

The Burrtec Waste Industrial operation is expected to expand with City growth as follows:

Opening Day – 5 Years

- City of Riverside - Add 1 residential route
- City of Rialto – Add 1 commercial route
- City of Jurupa Valley – Add 2 residential routes
- Add 2 roll off trucks
- Add 1 bin truck
- Add 1 bulky waste stake truck
- Add 1 food waste recycling route
- Add 1 Mechanic to 1st shift and 3 to 2nd shift
- Add 1 customer service representative

This would increase staffing for office (1), yard mechanics (4), yard supervisors (1), and collection drivers (18) by a total of 24 employees and increase trucks by 18.

Years 6 – 10

- City of Riverside - Add 1 commercial route
- City of Rialto – Add 1 commercial route
- City of Jurupa Valley – Add 1 residential route and 1 commercial route
- Add 2 roll off trucks
- Add 1 bin truck
- Add 1 bulky waste stake truck
- Add 1 food waste recycling route
- Add 1 Mechanic to 1st shift and 3 to 2nd shift

This would add increase staffing for yard mechanics (4) and collection drivers (12) by a total of 16 employees and increase trucks by 12.

PROJECT TRIP GENERATION

Since the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017) does not include data for Material Recovery Facility (MRF)/Transfer Station facilities, trip rates were derived from staffing and trucking records provided by the applicant for the existing facility. Attachment B contains the staffing and truck records.

Trips generated by employees were determined based on shift hours for each group of employees. The shift hours by employee type is office (8:00 AM to 5:00 PM), yard mechanics (5:00 AM to 5:00 PM or 12 Noon to 12 midnight), yard supervisors (5:00 AM to 6:00 PM), and collection drivers (5:00 AM to 6:00 PM). The office staff will arrive during the AM peak commute period (7-9 AM) and depart during the PM peak commute period (4-6 PM). The yard supervisors, yard mechanics and collection drivers arrive prior to the AM commute period

and leave during the PM commute period. Each employee was presumed to generate one inbound trip at the start of their shift and one outbound trip at the end of their shift.

Additionally, each truck was presumed to generate one outbound trip at the start of the day and one inbound trip at the end of the day. All outbound truck trips for the commercial and residential routes occur prior to the AM commute period. The inbound truck trips for the commercial and residential routes are based on actual truck counts per hour from 3:00 PM to 7:00 PM. The inbound truck trips were derived from the count of 31% from 3:00 PM to 4:00 PM, 33% from 4:00 PM to 5:00 PM, 27% from 5:00 PM to 6:00 PM, and 9% from 6:00 PM to 7:00 PM.

Table 1 shows the inbound and outbound parking lot trips for employees and trucks. Based on existing usage the proposed driveway relocation will continue to generate 468 daily trips, including 14 trips during the AM peak hour and 164 trips during the PM peak hour. Based on the projected 5-year growth, the proposed project is forecast to generate approximately 84 additional daily trips, including 1 additional trip during the AM peak hour and 30 additional trips during the PM peak hour. Based on the projected 6- to 10-year growth period, the proposed project is forecast to generate an additional 55 daily trips, including no new trips during the AM peak hour and 19 additional trips during the PM peak hour. As shown in Table 1, the proposed project is forecast to result in a total of approximately 139 additional daily trips, including 1 additional trip during the AM peak hour and 49 additional trips during the PM peak hour.

NEED FOR PREPARATION OF TRANSPORTATION IMPACT STUDY

A project screening assessment was performed to determine if further Level of Service (LOS) or Vehicle Miles Traveled (VMT) analysis is warranted in accordance with guidance specified in the City of Jurupa Valley *Traffic Impact Analysis Guidelines* (November 2020) ["the City TIA Guidelines"].

In accordance with provisions of the California Environmental Quality Act (CEQA), VMT is the most appropriate measure of transportation impacts under CEQA. The need for further Level of Service analysis is reviewed solely for General Plan conformance since a project's effect on automobile delay shall not constitute a significant environmental impact under CEQA.

LEVEL OF SERVICE SCREENING CRITERIA (NON-CEQA/GENERAL PLAN CONFORMITY)

As specified in the City TIA Guidelines, the requirement to prepare a transportation impact study with Level of Service analysis may not be required for the following:

- Residential parcel maps;
- Single family residential tracts of less than 100 dwelling units;
- Apartment or multi-family projects of less than 150 units;
- Plot plan and conditional use cases for projects of one acre or less;
- Preschools;
- Local serving churches, community centers, neighborhood parks and community parks;
- Mini-storage yards;
- Congregate care facilities that contain significant on-site special services, such as medical care, dining, recreational and support retail services facilities;
- Any other use which can demonstrate trip generation of less than 100 vehicle trips during any hour of the day.
- If a project generates between 50 and 99 trips during any peak hour, a focused traffic analysis (FTA) study may be required if there are special operational, safety or sensitivity concerns.

The proposed project is forecast to generate fewer than 100 (net new) peak hour trips with the relocation of the employee and truck parking access. Additionally, planned expansion, based on community requirements, is not expected to exceed 100 (net new) peak hour trips. Assuming the project shall construct all on-site and off-site improvements (if any) in accordance with City design standards, the project would not create any new safety or operational concerns. Therefore, the proposed project does not appear to warrant preparation of a Level of Service transportation impact study based on the City-established screening criteria for Level of Service analysis.

VEHICLE MILES TRAVELED SCREENING CRITERIA (CEQA)

The VMT screening assessment has been prepared in accordance with the TIA Guidelines, which were developed based on guidance from the Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* (State of California, December 2018) ["OPR Technical Advisory"]. In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. The OPR Technical Advisory provides technical considerations regarding methodologies and thresholds with a focus on office, residential, and retail developments as these projects tend to have the greatest influence on VMT.

The City of Jurupa Valley guidelines identify screening criteria for certain types of projects that typically reduce VMT and may be presumed to result in a less than significant VMT impact. No further VMT analysis is typically required for projects that satisfy one or more of the following screening criteria.

- Projects located within a Transit Priority Area (TPA)
 - Projects within one-half mile of major transit stop or high-quality transit corridor
- Projects located within a low VMT generating area
 - Site location can be verified with the web-based VMT Screening Tool
- Projects consisting of local servicing land use
 - Local-serving retail less than 50,000 square feet
 - Day care centers
 - Local-serving retail centers, gas stations, and banks
 - Local-serving restaurants, including with drive-thru
 - Local-serving hotels (e.g. non-destination hotels)
 - Local-serving community institutions¹ (consistent with the Regional Transportation Plan)
 - Affordable, Senior or Transitional Housing
 - Preschool, Schools
 - Parks, Recreational Facilities
 - Churches, Community Centers
 - Congregate Care, Assisted Living Facilities
 - City Offices, Fire Station, Police Station
 - Utility Facilities, Water-Gas-Electric-Waste Services
- Trip Screening
 - Existing facilities
 - Redevelopment with less than 20,000 square feet increase

¹ Local servicing community institutions are not specifically spelled out in the City guidelines; however, these institutions are implied by the OPR Technical Advisory as they provide needed community-based services.

- Projects with less than 250 daily vehicle trips (ADT) ²

Local Serving Land Uses

As noted in the OPR Technical Advisory, a presumption of less than significant VMT impact may be appropriate for certain types of local serving projects based on their VMT-reducing nature. Local serving projects will generally redistribute trips rather than creating new trips.

The proposed project trips are to service the local community with needed public services which are not available in the general area. There are no alternative options for MRF/Transfer Station facilities within an eight-mile radius of the project site. The existing site is located to efficiently service the local community, thereby shortening travel distances and reducing VMT. Accordingly, the City TIA Guidelines specify utility facilities and waste services as a local-serving community use. Therefore, the proposed project satisfies the City-established screening criteria for local-serving community institutions and may be presumed to result in a less than significant VMT impact.

Projects with less than 250 daily vehicle trips

The proposed project is forecast to result in a net increase of approximately 139 daily vehicle trips over a 10-year growth forecast. Therefore, the proposed project satisfies the City-established screening criteria for projects with less than 250 daily vehicle trips and may be presumed to result in a less than significant VMT impact.

CONCLUSIONS

The proposed project is forecast to result in a total of approximately 139 additional daily trips, including 1 additional trip during the AM peak hour and 49 additional trips during the PM peak hour.

Based on the trip generation estimates, the proposed project does not appear to warrant preparation of a Level of Service transportation impact study based on the City-established screening criteria for Level of Service analysis.

The proposed project satisfies the City-established screening criteria for local-serving community institutions and projects that generate less than 250 daily vehicles trips and may therefore be presumed to result in a less than significant VMT impact.

² As noted in the City guidelines, this threshold ties directly to the OPR Technical Advisory, CEQA provides a categorical exemption for existing facilities and additions to existing structures up to 10,000 square feet so long as the project is in an area where public infrastructure is available to allow for maximum planning development and the project is not in an environmentally sensitive area (CEQA Guidelines, § 15301, subd. (e)(2)). City experience is that projects approximately twice that size do not show a substantially different impact assuming a linear rate of trip growth. Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 220-250 trips per 20,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 250 or fewer trips could be considered not to lead to a significant impact.

Mr. Gary Koontz, Facility Project Manager
BURRTEC WASTE INDUSTRIES, INC.
June 28, 2021

It has been a pleasure to assist you with this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Sincerely,
GANDDINI GROUP, INC.



Perrie Ilercil, P.E. (AZ)
Senior Engineer



Giancarlo Ganddini, PE, PTP
Principal

Table 1
Riverside Hauling Staff and Shifts

Type	Classification	Shift	Total	Early Morning (prior 7AM)		AM Peak Hours (7-9AM)			Mid-day (9-4AM)		PM Peak Hours (4-6AM)			Evening (after 6PM)		Daily
				In	Out	In	Out	Total	In	Out	In	Out	Total	In	Out	
Staff	Drivers	1st Shift 5-6	93	93				0				85	85		8	186
Staff	Mechanics	1st Shift 5-6	3	3				0				3	3			6
Staff	Supervisor	1st Shift 5-6	3	3				0				3	3			6
Staff	Office	1st Shift 8-5	14			14		14				14	14			28
Staff	Mechanics	2nd Shift 12-12	22					0	22				0		22	44
Trucks	Front End Loaders	Commercial	30		30			0	9		18		18	3		60
Trucks	Roll-off Trucks	Cst/Comm	18		18			0	6		11		11	1		36
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	6		3			0	3	3	3		3			12
Trucks	Side Loader	Residential	45		45			0	14		27		27	4		90
Curent Existing Total				99	96	14	0	14	54	3	59	105	164	8	30	468
Operational Increases 0-5 Years																
Staff	Drivers	1st Shift 5-6	18	18				0				16	16		2	36
Staff	Mechanics	1st Shift 5-6	1	1				0				1	1			2
Staff	Supervisor	1st Shift 5-6	1	1				0				1	1			2
Staff	Office	1st Shift 8-5	1			1		1				1	1			2
Staff	Mechanics	2nd Shift 12-12	3					0	3				0		3	6
Trucks	Front End Loaders	Commercial	1		1			0	0		1		1	0		2
Trucks	Roll-off Trucks	Cst/Comm	2		2			0	1		1		1	0		4
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	3		1			0	1	2	2		2			6
Trucks	Side Loader	Residential	12		12			0	4		7		7	1		24
0- 5 Year Total				20	16	1	0	1	9	2	11	19	30	1	5	84
Operational Increases 6-10 Years																
Staff	Drivers	1st Shift 5-6	12	12				0				11	11		1	24
Staff	Mechanics	1st Shift 5-6	1	1				0				1	1			2
Staff	Supervisor	1st Shift 5-6		0				0				0	0			0
Staff	Office	1st Shift 8-5				0		0				0	0			0
Staff	Mechanics	2nd Shift 12-12	3					0	3				0		3	6
Trucks	Front End Loaders	Commercial	3		3			0	1		2		2	0		6
Trucks	Roll-off Trucks	Cst/Comm	2		2			0	1		1		1	0		4
Trucks	Bin/Bulk Waste	Bin/Rear/Flatbed	3		1			0	1	2	2		2			6
Trucks	Side Loader	Residential	4		4			0	1		2		2	0		7
6-10 Year Total				13	10	0	0	0	7	2	7	12	19	0	4	55
Future Total				132	122	15	0	15	70	7	77	136		9	39	607
Net New Trips				33	26	1	0	1	16	4	18	31	49	1	9	139

ATTACHMENT A

SITE PLAN

VICINITY MAP
TOWNSHIP 2S, RANGE 58, SECTION 2

BENCHMARK
ELEVATIONS SHOWN HEREON ARE BASED ON A COUNTY OF RIVERSIDE
BENCHMARK "M.L.-3-64 RESET 1970"
LOCATED AT THE "T" INTERSECTION OF MARKET ST. & AGUA MANSA RD.,
170' NORTH FROM THE INTERSECTION ALONG THE CENTERLINE OF AGUA
MANSA RD., 25' WEST OF THE CENTERLINE OF AGUA MANSA RD., 17' EAST
OF A 6" CHAIN LINK FENCE, SURROUNDING E.L. YEAGER CONSTRUCTION CO.
7 EAST OF A 24-INCH DRAIN SET ON TOP OF A 12X12" CONCRETE
NORMAL STANDARD RISE CO. SUR. BRASS DISK MARKED M.L.-3-64
RESET 1970
ELEVATION = 864.497' (NGVD29)

IMPORTANT NOTE:
THE GRADING AND/OR IMPROVEMENT PLANS ARE APPROVED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE SIGNED BY THE CITY ENGINEER. AFTER THE TWO (2) YEAR PERIOD HAS LAPSED, THE ENGINEER OF RECORD MAY BE REQUIRED TO SUBMIT AND PROCEED FOR CITY ENGINEER APPROVAL, UPDATED PLANS THAT COMPLY WITH THE MOST CURRENT CITY STANDARDS, PRACTICES, AND POLICIES.

[illegible]

DEFORMATION
SEE SHEET 1

BASIS OF MEASUREMENT
SEE SHEET 1



K&A ENGINEERING
LAND PLANNING
SURVEYING
Engineering, Inc.
1601 17th Avenue SE
PO Box 100000
Seattle, WA 98106-0000
TEL: (206) 325-1000
FAX: (206) 325-4300

ACCT. NO. _____

SHEET 1 OF 2

ATTACHMENT B

BURRTEC WASTE INFORMATION

Burrtec Wilson Street Yard

Hours of Operation

Office – 8:00 a.m. – 5:00 p.m.

Collection Truck Drivers – 5:00 a.m. – 6:00 p.m.

Mechanics – 5:00 a.m. - Midnight

5:00 am to 5:30 am

Trucks leaving the site

- Commercial Front End Loaders – 30
- Roll -off trucks – 18
- Bin/Bulky Waste Stake Trucks – 3

Employees Arriving – Drivers, Mechanics and Supervisors – Approximately 55

5:30 am to 6:00 am

Trucks leaving the site

- Residential Side Loaders – 45
- Bin/Bulky Waste Stake Trucks – 3

Employees Arriving – Drivers, Mechanics and Supervisors – Approximately 50

A few trucks leave shortly after 6:00 a.m. due to mechanical delays.

Morning peak hours to dump at MRF/Transfer Station – 9:00 a.m. – 10:30 p.m.

Trucks returning to yard – Peak is 3:00 p.m. to 4:30 p.m. with a few returning as late as 6:00 p.m. All Rialto trash trucks dump at the Mid-Valley Landfill in Rialto. All other trash trucks and all recycling and green waste trucks dump at R.A. Nelson MRF/Transfer Station (Agua Mansa MRF).

Office Staff

Works 8:00 a.m. to 5:00 p.m.

Total office staff - 14

Mechanics

1st shift – 3 employees working 5:00 a.m. to 5:00 p.m.

2nd shift – 22 employees working Noon to Midnight

Truck End of Day Return

There are approximately 90 collection trucks out every business day (Monday - Friday). On a typically day they arrive back at the yard as follows:

3:00 pm - 4:00 pm - 28

4:00 pm - 5:00 pm - 30

5:00 pm- 6:00 pm - 24

6:00 pm- 7:00 pm - 8

Expected Growth

Opening Day – 5 Yrs.

- City of Riverside - Add 1 residential route
- City of Rialto – Add 1 commercial route
- City of Jurupa Valley – Add 2 residential routes
- Add 2 roll off trucks
- Add 1 bin truck
- Add 1 bulky waste stake truck
- Add 1 food waste recycling route
- Add 1 Mechanic to 1st shift and 3 to 2nd shift
- Add 1 customer service representative

Years 6 – 10

- City of Riverside - Add 1 commercial route
- City of Rialto – Add 1 commercial route
- City of Jurupa Valley – Add 1 residential route and 1 commercial route
- Add 2 roll off trucks
- Add 1 bin truck
- Add 1 bulky waste stake truck
- Add 1 food waste recycling route
- Add 1 Mechanic to 1st shift and 3 to 2nd shift

APPENDIX C

VOLUME COUNT WORKSHEETS

PREPARED BY: AImTD LLC. tel: 714 253 7888 cs@aimtd.com

LOCATION:
NORTH & SOUTH:
EAST & WEST:

DATE: 10/20/21
WEDNESDAY

```
PROJECT #: SC
LOCATION #: 1
CONTROL: STOP W
```

LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	Northbound				Southbound			Eastbound			Westbound		

Apix-32

INTERSECTION TURNING MOVEMENT COUNTS
PREPARED BY: AImTD LLC, tel: 714 253 7888 cs@aimtd.com

PREPARED BY: AImTD LLC. tel: 714 253 7888 cs@aimtd.com

PROJECT # : SC
LOCATION # : 2
CONTROL: SIGNAL

LOCATION:
NORTH & SOUTH:
EAST & WEST:

DATE: 10/20/21
WEDNESDAY

[illegible]

LANES:	NL X	NT 2	NR 0	SL 1	ST 2	SR X	EL X	ET X	ER X	WL 0	WT X	WR 0	TOTAL
	Northbound Aguia Mansa			Southbound Aguia Mansa			Eastbound RA Nelson Sta			Westbound RA Nelson Sta			

[illegible]

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:
10/20/21
WEDNESDAY

LOCATION:
NORTH & SOUTH:
EAST & WEST:

Jurupa Valley
Agua Mansa
Market

PROJECT #: SC
LOCATION #: 3
CONTROL: SIGNAL

PCE Adjusted	NOTES:								AM		▲	
	Class	1	2	3	4	5	6		PM		N	
	Factor	1	1.5	2	3	2	2		MD	◀ W		E ▶
									OTHER		S	
									OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Agua Mansa			Agua Mansa			Market			Market			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL

AM	7:00 AM	0	0	0	24	0	71	58	125	1	0	114	52	444
	7:15 AM	5	0	0	21	0	79	62	155	0	0	111	52	484
	7:30 AM	0	0	2	31	0	89	78	146	0	0	122	38	504
	7:45 AM	3	0	0	36	0	59	70	147	0	0	100	66	479
	8:00 AM	0	1	0	32	0	71	76	122	0	0	106	66	474
	8:15 AM	0	0	0	35	0	65	71	136	3	0	131	50	489
	8:30 AM	0	2	0	20	0	57	72	125	0	0	114	53	442
	8:45 AM	0	0	0	21	0	69	77	128	0	0	90	62	446
	VOLUMES	8	3	2	218	0	558	564	1,082	4	0	885	437	3,759
	APPROACH %	63%	21%	17%	28%	0%	72%	34%	66%	0%	0%	67%	33%	
PM	APP/DEPART	12	/	1,003	776	/	4	1,650	/	1,302	1,322	/	1,450	0
	BEGIN PEAK HR	7:15 AM												
	VOLUMES	8	1	2	119	0	297	286	569	0	0	438	220	1,939
	APPROACH %	71%	10%	19%	29%	0%	71%	33%	67%	0%	0%	67%	33%	
	PEAK HR FACTOR	0.583			0.874			0.956			0.958			0.963
	APP/DEPART	11	/	507	416	/	0	855	/	690	658	/	742	0
	4:00 PM	0	2	0	33	0	66	83	153	0	0	141	65	542
	4:15 PM	1	0	0	27	0	67	150	141	0	0	167	57	608
	4:30 PM	0	0	0	34	0	86	106	152	0	0	128	31	535
	4:45 PM	0	0	2	39	0	50	117	135	3	0	120	34	498
	5:00 PM	0	0	0	35	0	96	125	118	0	0	139	46	557
	5:15 PM	0	0	0	29	2	84	101	146	0	0	123	45	528
	5:30 PM	0	3	0	37	0	108	85	123	3	0	130	48	535
	5:45 PM	0	0	0	29	0	62	97	116	0	0	134	42	479
	VOLUMES	1	5	2	261	2	617	863	1,082	6	0	1,079	366	4,280
	APPROACH %	14%	64%	21%	30%	0%	70%	44%	55%	0%	0%	75%	25%	
	APP/DEPART	7	/	1,233	879	/	8	1,950	/	1,344	1,444	/	1,696	0
	BEGIN PEAK HR	4:15 PM												
	VOLUMES	1	0	2	134	0	297	497	546	3	0	552	167	2,197
	APPROACH %	40%	0%	60%	31%	0%	69%	48%	52%	0%	0%	77%	23%	
	PEAK HR FACTOR	0.417			0.829			0.899			0.805			0.903
	APP/DEPART	3	/	663	431	/	3	1,045	/	681	719	/	850	0

APPENDIX D

LEVEL OF SERVICE WORKSHEETS

EXISTING

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	10	429	43	4	369
Future Volume (vph)	26	10	429	43	4	369
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	31	12	505	51	5	434
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	12	505	51	5	434
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	37.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	10	429	43	4	369
Future Vol, veh/h	26	10	429	43	4	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	31	12	505	51	5	434

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	949	505	0
Stage 1	505	-	-
Stage 2	444	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	291	571	-
Stage 1	610	-	-
Stage 2	651	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	290	571	-
Mov Cap-2 Maneuver	290	-	-
Stage 1	607	-	-
Stage 2	651	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 290 571 1025	-	-
HCM Lane V/C Ratio	-	- 0.105 0.021 0.005	-	-
HCM Control Delay (s)	-	- 18.9 11.4 8.5	-	-
HCM Lane LOS	-	- C B A	-	-
HCM 95th %tile Q(veh)	-	- 0.4 0.1 0	-	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	286	569	0	0	438	220	8	1	2	119	0	297
Future Volume (vph)	286	569	0	0	438	220	8	1	2	119	0	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.950			0.975				0.850
Flt Protected	0.950							0.965			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3430	0	0	1788	0	0	1805	1615
Flt Permitted	0.950							0.864			0.750	
Satd. Flow (perm)	1805	3610	0	1900	3430	0	0	1601	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					73			2				309
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	298	593	0	0	456	229	8	1	2	124	0	309
Shared Lane Traffic (%)												
Lane Group Flow (vph)	298	593	0	0	685	0	0	11	0	0	124	309
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Existing AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	19.2	59.0			32.8			27.0			27.0	27.0
Actuated g/C Ratio	0.19	0.59			0.33			0.27			0.27	0.27
v/c Ratio	0.86	0.28			0.58			0.03			0.32	0.47
Control Delay	61.4	10.5			28.4			24.5			37.5	11.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	61.4	10.5			28.4			24.5			37.5	11.2
LOS	E	B			C			C			D	B
Approach Delay		27.5			28.4			24.5			18.8	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 25.9

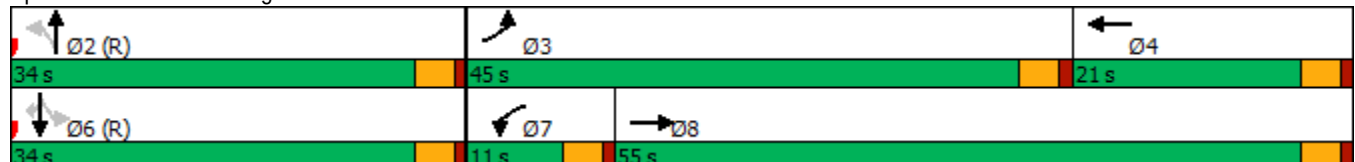
Intersection LOS: C

Intersection Capacity Utilization 60.9%

ICU Level of Service B

Analysis Period (min) 15

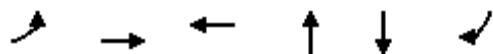
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	298	593	685	11	124	309
v/c Ratio	0.86	0.28	0.58	0.03	0.32	0.47
Control Delay	61.4	10.5	28.4	24.5	37.5	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	10.5	28.4	24.5	37.5	11.2
Queue Length 50th (ft)	185	90	168	4	64	0
Queue Length 95th (ft)	256	121	257	18	126	101
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1172	433	384	661
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.28	0.58	0.03	0.32	0.47
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	286	569	0	0	438	220	8	1	2	119	0	297
Future Volume (veh/h)	286	569	0	0	438	220	8	1	2	119	0	297
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	298	593	0	0	456	229	8	1	2	124	0	309
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	311	1733	0	2	556	277	351	47	75	628	0	612
Arrive On Green	0.17	0.48	0.00	0.00	0.24	0.24	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2333	1163	760	125	197	1464	0	1610
Grp Volume(v), veh/h	298	593	0	0	352	333	11	0	0	124	0	309
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1691	1081	0	0	1464	0	1610
Q Serve(g_s), s	16.3	10.2	0.0	0.0	18.5	18.7	0.0	0.0	0.0	0.0	0.0	14.7
Cycle Q Clear(g_c), s	16.3	10.2	0.0	0.0	18.5	18.7	5.1	0.0	0.0	5.1	0.0	14.7
Prop In Lane	1.00		0.00	1.00		0.69	0.73		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	311	1733	0	2	430	403	473	0	0	628	0	612
V/C Ratio(X)	0.96	0.34	0.00	0.00	0.82	0.83	0.02	0.00	0.00	0.20	0.00	0.51
Avail Cap(c_a), veh/h	688	1733	0	72	430	403	473	0	0	628	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.1	16.2	0.0	0.0	36.0	36.1	19.4	0.0	0.0	20.8	0.0	23.8
Incr Delay (d2), s/veh	15.7	0.5	0.0	0.0	15.8	17.4	0.1	0.0	0.0	0.7	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	4.2	0.0	0.0	9.9	9.5	0.2	0.0	0.0	2.0	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	16.7	0.0	0.0	51.9	53.6	19.5	0.0	0.0	21.5	0.0	26.7
LnGrp LOS	E	B	A	A	D	D	B	A	A	C	A	C
Approach Vol, veh/h	891			685			11			433		
Approach Delay, s/veh	30.1			52.7			19.5			25.2		
Approach LOS	C			D			B			C		
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	45.0		24.2	30.8		45.0		0.0	55.0			
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0		4.0	4.0			
Max Green Setting (Gmax), s	30.0		41.0	17.0		30.0		7.0	51.0			
Max Q Clear Time (g_c+I1), s	8.1		19.3	21.7		17.7		0.0	13.2			
Green Ext Time (p_c), s	0.0		0.9	0.0		1.4		0.0	4.6			
Intersection Summary												
HCM 6th Ctrl Delay	36.7											
HCM 6th LOS	D											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	19	642	21	7	389
Future Volume (vph)	44	19	642	21	7	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	46	20	676	22	7	409
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	20	676	22	7	409
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	44	19	642	21	7	389
Future Vol, veh/h	44	19	642	21	7	389
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	46	20	676	22	7	409

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1099	676	0
Stage 1	676	-	-
Stage 2	423	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	237	457	-
Stage 1	509	-	-
Stage 2	665	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	235	457	-
Mov Cap-2 Maneuver	235	-	-
Stage 1	505	-	-
Stage 2	665	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 235 457	908	-
HCM Lane V/C Ratio	-	- 0.197 0.044	0.008	-
HCM Control Delay (s)	-	- 24 13.2	9	-
HCM Lane LOS	-	- C B	A	-
HCM 95th %tile Q(veh)	-	- 0.7 0.1	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	497	546	3	0	552	167	1	0	2	134	0	297
Future Volume (vph)	497	546	3	0	552	167	1	0	2	134	0	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.965			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3484	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.961			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3484	0	0	1662	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			32			85				330
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	552	607	3	0	613	186	1	0	2	149	0	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	552	610	0	0	799	0	0	3	0	0	149	330
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Existing PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	35.9	69.0			26.1			32.0			32.0	32.0
Actuated g/C Ratio	0.31	0.60			0.23			0.28			0.28	0.28
v/c Ratio	0.98	0.28			0.98			0.01			0.37	0.48
Control Delay	73.1	11.5			70.2			0.0			34.7	5.0
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	73.1	11.5			70.2			0.0			34.7	5.0
LOS	E	B			E			A			C	A
Approach Delay		40.8			70.2						14.3	
Approach LOS		D			E						B	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 45.2

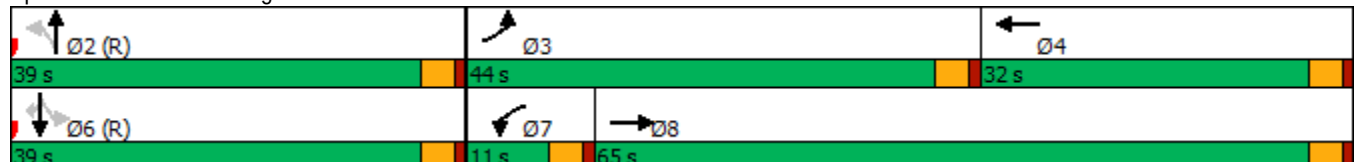
Intersection LOS: D

Intersection Capacity Utilization 79.7%

ICU Level of Service D

Analysis Period (min) 15

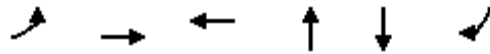
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	552	610	799	3	149	330
v/c Ratio	0.98	0.28	0.98	0.01	0.37	0.48
Control Delay	73.1	11.5	70.2	0.0	34.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	11.5	70.2	0.0	34.7	5.0
Queue Length 50th (ft)	398	107	~320	0	91	0
Queue Length 95th (ft)	#618	138	#447	0	152	34
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	815	523	399	687
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.28	0.98	0.01	0.37	0.48

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	497	546	3	0	552	167	1	0	2	134	0	297
Future Volume (veh/h)	497	546	3	0	552	167	1	0	2	134	0	297
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	552	607	3	0	613	186	1	0	2	149	0	330
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	557	2159	11	2	593	180	89	20	134	343	0	470
Arrive On Green	0.31	0.59	0.59	0.00	0.22	0.22	0.29	0.00	0.29	0.29	0.00	0.29
Sat Flow, veh/h	1810	3684	18	1810	2729	827	163	67	460	961	0	1610
Grp Volume(v), veh/h	552	297	313	0	405	394	3	0	0	149	0	330
Grp Sat Flow(s),veh/h/ln	1810	1805	1897	1810	1805	1751	690	0	0	961	0	1610
Q Serve(g_s), s	34.9	9.4	9.4	0.0	25.0	25.0	0.0	0.0	0.0	0.3	0.0	21.0
Cycle Q Clear(g_c), s	34.9	9.4	9.4	0.0	25.0	25.0	21.7	0.0	0.0	21.8	0.0	21.0
Prop In Lane	1.00		0.01	1.00		0.47	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	557	1058	1112	2	392	381	243	0	0	343	0	470
V/C Ratio(X)	0.99	0.28	0.28	0.00	1.03	1.03	0.01	0.00	0.00	0.43	0.00	0.70
Avail Cap(c_a), veh/h	582	1058	1112	63	392	381	243	0	0	343	0	470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.6	11.8	11.8	0.0	45.0	45.0	30.2	0.0	0.0	36.7	0.0	36.2
Incr Delay (d2), s/veh	34.4	0.7	0.6	0.0	54.0	55.4	0.1	0.0	0.0	4.0	0.0	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.6	3.9	4.1	0.0	17.0	16.6	0.1	0.0	0.0	4.1	0.0	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.0	12.5	12.4	0.0	99.0	100.4	30.3	0.0	0.0	40.6	0.0	44.7
LnGrp LOS	E	B	B	A	F	F	C	A	A	D	A	D
Approach Vol, veh/h	1162			799			3			479		
Approach Delay, s/veh	41.7			99.7			30.3			43.4		
Approach LOS	D			F			C			D		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	40.6		42.4	32.0		40.6	0.0	74.4				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0		35.0	7.0	61.0				
Max Q Clear Time (g_c+I1), s	24.7		37.9	28.0		24.8	0.0	12.4				
Green Ext Time (p_c), s	0.0		0.5	0.0		1.5	0.0	4.2				
Intersection Summary												
HCM 6th Ctrl Delay	61.0											
HCM 6th LOS	E											

EXISTING PLUS PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	75	376	72	80	298
Future Volume (vph)	67	75	376	72	80	298
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	79	88	442	85	94	351
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	88	442	85	94	351
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.4%			ICU Level of Service A		
Analysis Period (min)	15					

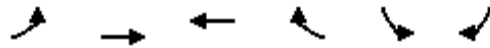
HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	75	376	72	80	298
Future Vol, veh/h	67	75	376	72	80	298
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	79	88	442	85	94	351
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	981	442	0	0	527	0
Stage 1	442	-	-	-	-	-
Stage 2	539	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	279	620	-	-	1050	-
Stage 1	652	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	620	-	-	1050	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	593	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	18.2	0	1.9			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 254 620	1050	-		
HCM Lane V/C Ratio	-	- 0.31 0.142	0.09	-		
HCM Control Delay (s)	-	- 25.4 11.8	8.8	-		
HCM Lane LOS	-	- D B	A	-		
HCM 95th %tile Q(veh)	-	- 1.3 0.5	0.3	-		

Lanes, Volumes, Timings
2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	59	64	36	0	0	84
Future Volume (vph)	59	64	36	0	0	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.977				
Satd. Flow (prot)	0	1856	1900	0	1644	0
Flt Permitted		0.977				
Satd. Flow (perm)	0	1856	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	70	39	0	0	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	134	39	0	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.2%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	59	64	36	0	0	84
Future Vol, veh/h	59	64	36	0	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	64	70	39	0	0	91

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	39	0	0 237 39
Stage 1	-	-	- 39 -
Stage 2	-	-	- 198 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1584	-	- 756 1038
Stage 1	-	-	- 989 -
Stage 2	-	-	- 840 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1584	-	- 724 1038
Mov Cap-2 Maneuver	-	-	- 700 -
Stage 1	-	-	- 947 -
Stage 2	-	-	- 840 -

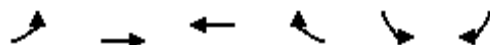
Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	1038
HCM Lane V/C Ratio	0.04	-	-	-	0.088
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lanes, Volumes, Timings

3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	56	36	0	0	10
Future Volume (vph)	21	56	36	0	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	61	39	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	61	39	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	56	36	0	0	10
Future Vol, veh/h	21	56	36	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	61	39	0	0	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	39	0	0 146 39
Stage 1	-	-	- - 39 -
Stage 2	-	-	- - 107 -
Critical Hdwy	4.1	-	- - 6.4 6.2
Critical Hdwy Stg 1	-	-	- - 5.4 -
Critical Hdwy Stg 2	-	-	- - 5.4 -
Follow-up Hdwy	2.2	-	- - 3.5 3.3
Pot Cap-1 Maneuver	1584	-	- - 851 1038
Stage 1	-	-	- - 989 -
Stage 2	-	-	- - 922 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1584	-	- - 838 1038
Mov Cap-2 Maneuver	-	-	- - 804 -
Stage 1	-	-	- - 974 -
Stage 2	-	-	- - 922 -

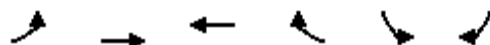
Approach	EB	WB	SB
HCM Control Delay, s	2	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	1038
HCM Lane V/C Ratio	0.014	-	-	-	0.01
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	47	36	0	0	12
Future Volume (vph)	25	47	36	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	51	39	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	51	39	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	47	36	0	0	12
Future Vol, veh/h	25	47	36	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	27	51	39	0	0	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	39	0	0 144 39
Stage 1	-	-	- 39 -
Stage 2	-	-	- 105 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1584	-	- 853 1038
Stage 1	-	-	- 989 -
Stage 2	-	-	- 924 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1584	-	- 838 1038
Mov Cap-2 Maneuver	-	-	- 802 -
Stage 1	-	-	- 972 -
Stage 2	-	-	- 924 -

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	1038
HCM Lane V/C Ratio	0.017	-	-	-	0.013
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	294	569	0	0	438	224	8	1	2	129	0	315
Future Volume (vph)	294	569	0	0	438	224	8	1	2	129	0	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.949			0.975				0.850
Flt Protected	0.950							0.965			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3426	0	0	1788	0	0	1805	1615
Flt Permitted	0.950							0.862			0.750	
Satd. Flow (perm)	1805	3610	0	1900	3426	0	0	1597	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					75			2				328
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	306	593	0	0	456	233	8	1	2	134	0	328
Shared Lane Traffic (%)												
Lane Group Flow (vph)	306	593	0	0	689	0	0	11	0	0	134	328
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Existing Plus Project AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	19.7	59.0			32.3			27.0			27.0	27.0
Actuated g/C Ratio	0.20	0.59			0.32			0.27			0.27	0.27
v/c Ratio	0.86	0.28			0.59			0.03			0.35	0.49
Control Delay	61.2	10.5			28.8			24.5			37.9	11.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	61.2	10.5			28.8			24.5			37.9	11.3
LOS	E	B			C			C			D	B
Approach Delay		27.7			28.8			24.5			19.0	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 26.1

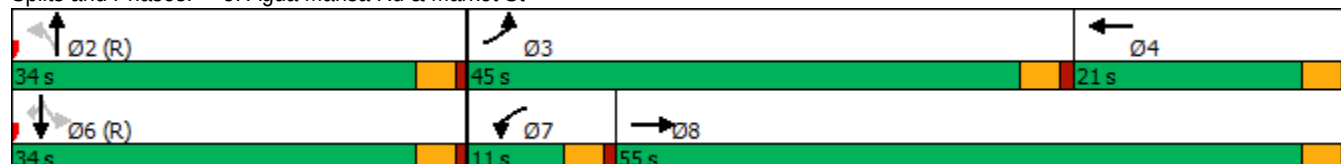
Intersection LOS: C

Intersection Capacity Utilization 62.1%

ICU Level of Service B

Analysis Period (min) 15

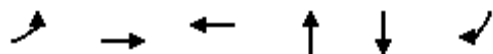
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	306	593	689	11	134	328
v/c Ratio	0.86	0.28	0.59	0.03	0.35	0.49
Control Delay	61.2	10.5	28.8	24.5	37.9	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	10.5	28.8	24.5	37.9	11.3
Queue Length 50th (ft)	190	90	171	4	74	0
Queue Length 95th (ft)	262	121	260	18	131	96
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1158	432	384	675
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.28	0.59	0.03	0.35	0.49
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	569	0	0	438	224	8	1	2	129	0	315
Future Volume (veh/h)	294	569	0	0	438	224	8	1	2	129	0	315
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	306	593	0	0	456	233	8	1	2	134	0	328
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	319	1733	0	2	541	275	341	46	72	626	0	612
Arrive On Green	0.18	0.48	0.00	0.00	0.23	0.23	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2318	1176	733	121	190	1457	0	1610
Grp Volume(v), veh/h	306	593	0	0	354	335	11	0	0	134	0	328
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1688	1045	0	0	1457	0	1610
Q Serve(g_s), s	16.8	10.2	0.0	0.0	18.7	18.9	0.0	0.0	0.0	0.0	0.0	15.9
Cycle Q Clear(g_c), s	16.8	10.2	0.0	0.0	18.7	18.9	5.8	0.0	0.0	5.8	0.0	15.9
Prop In Lane	1.00		0.00	1.00		0.70	0.73		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	319	1733	0	2	422	394	459	0	0	626	0	612
V/C Ratio(X)	0.96	0.34	0.00	0.00	0.84	0.85	0.02	0.00	0.00	0.21	0.00	0.54
Avail Cap(c_a), veh/h	688	1733	0	72	422	394	459	0	0	626	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.8	16.2	0.0	0.0	36.5	36.6	19.5	0.0	0.0	21.0	0.0	24.1
Incr Delay (d2), s/veh	15.5	0.5	0.0	0.0	18.0	19.8	0.1	0.0	0.0	0.8	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	4.2	0.0	0.0	10.2	9.8	0.2	0.0	0.0	2.2	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	16.7	0.0	0.0	54.5	56.4	19.6	0.0	0.0	21.8	0.0	27.5
LnGrp LOS	E	B	A	A	D	E	B	A	A	C	A	C
Approach Vol, veh/h	899			689			11			462		
Approach Delay, s/veh	30.2			55.4			19.6			25.8		
Approach LOS	C			E			B			C		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	45.0			24.6			30.4			45.0		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	30.0			41.0			17.0			30.0		
Max Q Clear Time (g_c+I1), s	8.8			19.8			21.9			18.9		
Green Ext Time (p_c), s	0.0			0.9			0.0			1.5		
Intersection Summary												
HCM 6th Ctrl Delay	37.6											
HCM 6th LOS	D											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	108	63	605	87	84	323
Future Volume (vph)	108	63	605	87	84	323
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	114	66	637	92	88	340
Shared Lane Traffic (%)						
Lane Group Flow (vph)	114	66	637	92	88	340
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	60.0%			ICU Level of Service B		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	108	63	605	87	84	323
Future Vol, veh/h	108	63	605	87	84	323
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	114	66	637	92	88	340

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1153	637	0
Stage 1	637	-	-
Stage 2	516	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	220	481	-
Stage 1	531	-	-
Stage 2	603	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	198	481	-
Mov Cap-2 Maneuver	198	-	-
Stage 1	478	-	-
Stage 2	603	-	-

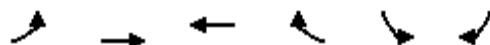
Approach	WB	NB	SB
HCM Control Delay, s	33.6	0	2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 198 481	884	-
HCM Lane V/C Ratio	-	- 0.574 0.138	0.1	-
HCM Control Delay (s)	-	- 45.2 13.7	9.5	-
HCM Lane LOS	-	- E B	A	-
HCM 95th %tile Q(veh)	-	- 3.1 0.5	0.3	-

Lanes, Volumes, Timings

2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	104	32	82	0	0	61
Future Volume (vph)	104	32	82	0	0	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.963				
Satd. Flow (prot)	0	1830	1900	0	1644	0
Flt Permitted		0.963				
Satd. Flow (perm)	0	1830	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	35	89	0	0	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	148	89	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 29.6%				ICU Level of Service A		
Analysis Period (min) 15						

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	104	32	82	0	0	61
Future Vol, veh/h	104	32	82	0	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	113	35	89	0	0	66

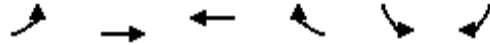
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	89	0	0 350 89
Stage 1	-	-	- 89 -
Stage 2	-	-	- 261 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1519	-	- 651 975
Stage 1	-	-	- 940 -
Stage 2	-	-	- 787 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1519	-	- 602 975
Mov Cap-2 Maneuver	-	-	- 601 -
Stage 1	-	-	- 869 -
Stage 2	-	-	- 787 -

Approach	EB	WB	SB
HCM Control Delay, s	5.8	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1519	-	-	-	975
HCM Lane V/C Ratio	0.074	-	-	-	0.068
HCM Control Delay (s)	7.6	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lanes, Volumes, Timings
3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	18	30	73	0	0	22
Future Volume (vph)	18	30	73	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	33	79	0	0	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	33	79	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	30	73	0	0	22
Future Vol, veh/h	18	30	73	0	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	20	33	79	0	0	24

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	79	0	0 152 79
Stage 1	-	-	- 79 -
Stage 2	-	-	- 73 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1532	-	- 844 987
Stage 1	-	-	- 949 -
Stage 2	-	-	- 955 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1532	-	- 833 987
Mov Cap-2 Maneuver	-	-	- 808 -
Stage 1	-	-	- 937 -
Stage 2	-	-	- 955 -

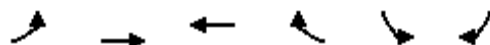
Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1532	-	-	-	987
HCM Lane V/C Ratio	0.013	-	-	-	0.024
HCM Control Delay (s)	7.4	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	28	63	0	0	25
Future Volume (vph)	21	28	63	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	30	68	0	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	30	68	0	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	28	63	0	0	25
Future Vol, veh/h	21	28	63	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	30	68	0	0	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	68	0	0 144 68
Stage 1	-	-	- 68 -
Stage 2	-	-	- 76 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1546	-	- 853 1001
Stage 1	-	-	- 960 -
Stage 2	-	-	- 952 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1546	-	- 840 1001
Mov Cap-2 Maneuver	-	-	- 811 -
Stage 1	-	-	- 946 -
Stage 2	-	-	- 952 -

Approach	EB	WB	SB
HCM Control Delay, s	3.2	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1546	-	-	-	1001
HCM Lane V/C Ratio	0.015	-	-	-	0.027
HCM Control Delay (s)	7.4	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	514	546	3	0	552	176	1	0	2	140	0	307
Future Volume (vph)	514	546	3	0	552	176	1	0	2	140	0	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.964			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3480	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.961			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3480	0	0	1662	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			34			85				341
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	571	607	3	0	613	196	1	0	2	156	0	341
Shared Lane Traffic (%)												
Lane Group Flow (vph)	571	610	0	0	809	0	0	3	0	0	156	341
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Existing Plus Project PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	36.8	69.0			25.2			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	0.99	0.28			1.03			0.01			0.39	0.49
Control Delay	74.6	11.5			81.3			0.0			39.4	8.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	74.6	11.5			81.3			0.0			39.4	8.2
LOS	E	B			F			A			D	A
Approach Delay		42.0			81.3						18.0	
Approach LOS		D			F						B	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 49.9

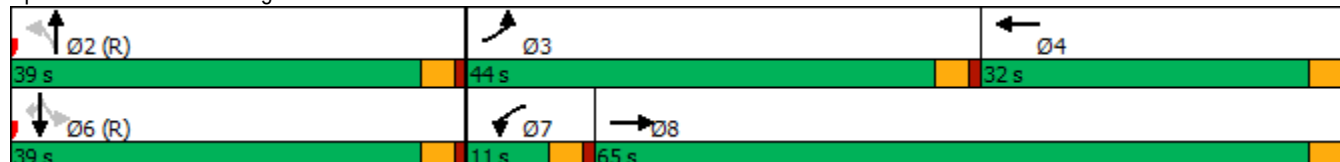
Intersection LOS: D

Intersection Capacity Utilization 81.3%

ICU Level of Service D

Analysis Period (min) 15

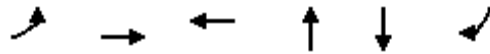
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	571	610	809	3	156	341
v/c Ratio	0.99	0.28	1.03	0.01	0.39	0.49
Control Delay	74.6	11.5	81.3	0.0	39.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.6	11.5	81.3	0.0	39.4	8.2
Queue Length 50th (ft)	418	107	~327	0	91	0
Queue Length 95th (ft)	#650	138	#456	0	166	102
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	789	523	399	695
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.28	1.03	0.01	0.39	0.49

Intersection Summary

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

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	514	546	3	0	552	176	1	0	2	140	0	307
Future Volume (veh/h)	514	546	3	0	552	176	1	0	2	140	0	307
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	571	607	3	0	613	196	1	0	2	156	0	341
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	573	2192	11	2	585	187	76	20	108	314	0	456
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3684	18	1810	2691	859	122	69	382	886	0	1610
Grp Volume(v), veh/h	571	297	313	0	411	398	3	0	0	156	0	341
Grp Sat Flow(s),veh/h/ln	1810	1805	1897	1810	1805	1745	574	0	0	886	0	1610
Q Serve(g_s), s	36.2	9.2	9.2	0.0	25.0	25.0	0.0	0.0	0.0	0.3	0.0	22.1
Cycle Q Clear(g_c), s	36.2	9.2	9.2	0.0	25.0	25.0	23.9	0.0	0.0	24.1	0.0	22.1
Prop In Lane	1.00		0.01	1.00		0.49	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	573	1074	1129	2	392	379	204	0	0	314	0	456
V/C Ratio(X)	1.00	0.28	0.28	0.00	1.05	1.05	0.01	0.00	0.00	0.50	0.00	0.75
Avail Cap(c_a), veh/h	582	1074	1129	63	392	379	204	0	0	314	0	456
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.2	11.3	11.3	0.0	45.0	45.0	31.3	0.0	0.0	38.3	0.0	37.5
Incr Delay (d2), s/veh	36.1	0.6	0.6	0.0	58.2	59.7	0.1	0.0	0.0	5.5	0.0	10.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.5	3.8	4.0	0.0	17.4	17.0	0.1	0.0	0.0	4.5	0.0	10.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.3	11.9	11.9	0.0	103.2	104.7	31.4	0.0	0.0	43.9	0.0	48.2
LnGrp LOS	E	B	B	A	F	F	C	A	A	D	A	D
Approach Vol, veh/h	1181			809			3			497		
Approach Delay, s/veh	42.6			104.0			31.4			46.8		
Approach LOS	D			F			C			D		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.6		43.4	32.0	39.6		0.0	75.4				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	26.9		39.2	28.0	27.1		0.0	12.2				
Green Ext Time (p_c), s	0.0		0.2	0.0	1.4		0.0	4.2				
Intersection Summary												
HCM 6th Ctrl Delay	63.4											
HCM 6th LOS	E											

OPENING BASE YEAR (2026) WITHOUT PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	11	474	47	4	407
Future Volume (vph)	29	11	474	47	4	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	34	13	558	55	5	479
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	13	558	55	5	479
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	39.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	11	474	47	4	407
Future Vol, veh/h	29	11	474	47	4	407
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	34	13	558	55	5	479

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1047	558	0
Stage 1	558	-	-
Stage 2	489	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	255	533	-
Stage 1	577	-	-
Stage 2	621	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	254	533	-
Mov Cap-2 Maneuver	254	-	-
Stage 1	574	-	-
Stage 2	621	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 254 533	976	-
HCM Lane V/C Ratio	-	- 0.134 0.024	0.005	-
HCM Control Delay (s)	-	- 21.4 11.9	8.7	-
HCM Lane LOS	-	- C B	A	-
HCM 95th %tile Q(veh)	-	- 0.5 0.1	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	628	0	0	484	243	9	1	2	131	0	328
Future Volume (vph)	316	628	0	0	484	243	9	1	2	131	0	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.950			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3430	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.852			0.750	
Satd. Flow (perm)	1805	3610	0	1900	3430	0	0	1582	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					73			2				342
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	329	654	0	0	504	253	9	1	2	136	0	342
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	654	0	0	757	0	0	12	0	0	136	342
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 1 (EAG1) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	21.0	59.0			31.0			27.0			27.0	27.0
Actuated g/C Ratio	0.21	0.59			0.31			0.27			0.27	0.27
v/c Ratio	0.87	0.31			0.68			0.03			0.35	0.50
Control Delay	60.1	10.7			32.3			24.7			36.2	15.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	60.1	10.7			32.3			24.7			36.2	15.3
LOS	E	B			C			C			D	B
Approach Delay		27.3			32.3			24.7			21.2	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 27.7

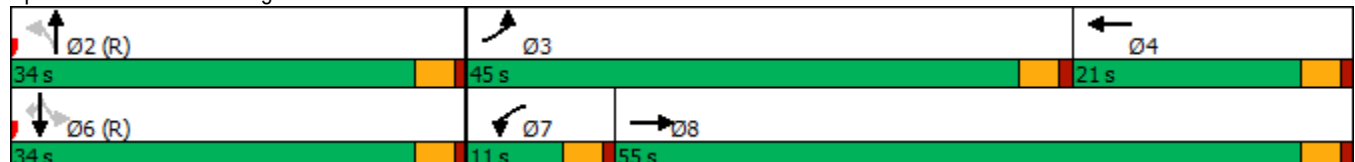
Intersection LOS: C

Intersection Capacity Utilization 65.1%

ICU Level of Service C

Analysis Period (min) 15

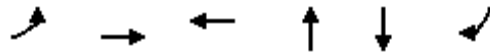
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	329	654	757	12	136	342
v/c Ratio	0.87	0.31	0.68	0.03	0.35	0.50
Control Delay	60.1	10.7	32.3	24.7	36.2	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	10.7	32.3	24.7	36.2	15.3
Queue Length 50th (ft)	204	102	200	5	80	52
Queue Length 95th (ft)	276	134	#334	19	119	97
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1113	428	384	685
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.31	0.68	0.03	0.35	0.50

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	628	0	0	484	243	9	1	2	131	0	328
Future Volume (veh/h)	316	628	0	0	484	243	9	1	2	131	0	328
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	329	654	0	0	504	253	9	1	2	136	0	342
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	343	1733	0	2	514	257	344	42	65	627	0	612
Arrive On Green	0.19	0.48	0.00	0.00	0.22	0.22	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2330	1165	741	109	170	1460	0	1610
Grp Volume(v), veh/h	329	654	0	0	390	367	12	0	0	136	0	342
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1690	1020	0	0	1460	0	1610
Q Serve(g_s), s	18.0	11.5	0.0	0.0	21.5	21.6	0.1	0.0	0.0	0.0	0.0	16.7
Cycle Q Clear(g_c), s	18.0	11.5	0.0	0.0	21.5	21.6	5.8	0.0	0.0	5.8	0.0	16.7
Prop In Lane	1.00		0.00	1.00		0.69	0.75		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	343	1733	0	2	398	373	451	0	0	627	0	612
V/C Ratio(X)	0.96	0.38	0.00	0.00	0.98	0.99	0.03	0.00	0.00	0.22	0.00	0.56
Avail Cap(c_a), veh/h	688	1733	0	72	398	373	451	0	0	627	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	16.5	0.0	0.0	38.8	38.8	19.5	0.0	0.0	21.0	0.0	24.4
Incr Delay (d2), s/veh	14.8	0.6	0.0	0.0	40.3	43.1	0.1	0.0	0.0	0.8	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	4.8	0.0	0.0	13.8	13.3	0.2	0.0	0.0	2.3	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	17.1	0.0	0.0	79.1	81.9	19.6	0.0	0.0	21.8	0.0	28.1
LnGrp LOS	D	B	A	A	E	F	B	A	A	C	A	C
Approach Vol, veh/h	983			757			12			478		
Approach Delay, s/veh	29.8			80.4			19.6			26.3		
Approach LOS	C			F			B			C		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	45.0		26.0	29.0	45.0		0.0	55.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	30.0		41.0	17.0	30.0		7.0	51.0				
Max Q Clear Time (g_c+I1), s	8.8		21.0	24.6	19.7		0.0	14.5				
Green Ext Time (p_c), s	0.0		0.9	0.0	1.5		0.0	5.1				
Intersection Summary												
HCM 6th Ctrl Delay	46.2											
HCM 6th LOS	D											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	49	21	709	23	8	429
Future Volume (vph)	49	21	709	23	8	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	22	746	24	8	452
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	22	746	24	8	452
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	52.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	49	21	709	23	8	429
Future Vol, veh/h	49	21	709	23	8	429
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	52	22	746	24	8	452

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1214	746	0
Stage 1	746	-	-
Stage 2	468	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	202	417	-
Stage 1	472	-	-
Stage 2	634	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	200	417	-
Mov Cap-2 Maneuver	200	-	-
Stage 1	468	-	-
Stage 2	634	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.6	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 200 417	854	-
HCM Lane V/C Ratio	-	- 0.258 0.053	0.01	-
HCM Control Delay (s)	-	- 29.1 14.1	9.3	-
HCM Lane LOS	-	- D B	A	-
HCM 95th %tile Q(veh)	-	- 1 0.2	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	549	603	3	0	609	184	1	0	2	148	0	328
Future Volume (vph)	549	603	3	0	609	184	1	0	2	148	0	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.965			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3484	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.960			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3484	0	0	1660	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			31			85				364
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	610	670	3	0	677	204	1	0	2	164	0	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	610	673	0	0	881	0	0	3	0	0	164	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua Mansa/Wilson) Project Opening Base Year 1 (EAG1) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.05	0.31			1.13			0.01			0.41	0.51
Control Delay	90.2	11.8			113.6			0.0			42.4	10.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	90.2	11.8			113.6			0.0			42.4	10.4
LOS	F	B			F			A			D	B
Approach Delay		49.1			113.6						20.4	
Approach LOS		D			F						C	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 64.5

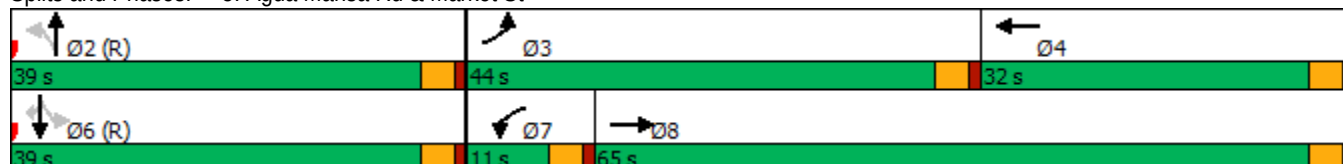
Intersection LOS: E

Intersection Capacity Utilization 85.5%

ICU Level of Service E

Analysis Period (min) 15

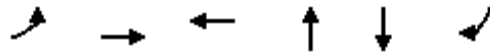
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	610	673	881	3	164	364
v/c Ratio	1.05	0.31	1.13	0.01	0.41	0.51
Control Delay	90.2	11.8	113.6	0.0	42.4	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.2	11.8	113.6	0.0	42.4	10.4
Queue Length 50th (ft)	~493	120	~388	0	96	0
Queue Length 95th (ft)	#714	155	#519	0	183	135
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	781	523	399	712
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.05	0.31	1.13	0.01	0.41	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	549	603	3	0	609	184	1	0	2	148	0	328
Future Volume (veh/h)	549	603	3	0	609	184	1	0	2	148	0	328
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	610	670	3	0	677	204	1	0	2	164	0	364
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2211	10	2	594	179	64	20	85	288	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3686	17	1810	2733	823	82	71	304	812	0	1610
Grp Volume(v), veh/h	610	328	345	0	447	434	3	0	0	164	0	364
Grp Sat Flow(s),veh/h/ln	1810	1805	1897	1810	1805	1752	457	0	0	812	0	1610
Q Serve(g_s), s	37.0	10.2	10.2	0.0	25.0	25.0	0.0	0.0	0.0	0.4	0.0	24.2
Cycle Q Clear(g_c), s	37.0	10.2	10.2	0.0	25.0	25.0	26.3	0.0	0.0	26.4	0.0	24.2
Prop In Lane	1.00		0.01	1.00		0.47	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	381	169	0	0	288	0	448
V/C Ratio(X)	1.05	0.30	0.30	0.00	1.14	1.14	0.02	0.00	0.00	0.57	0.00	0.81
Avail Cap(c_a), veh/h	582	1083	1138	63	392	381	169	0	0	288	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.2	11.2	0.0	45.0	45.0	32.2	0.0	0.0	39.7	0.0	38.7
Incr Delay (d2), s/veh	50.4	0.7	0.7	0.0	89.0	89.9	0.2	0.0	0.0	7.9	0.0	14.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.3	4.2	4.4	0.0	20.8	20.3	0.1	0.0	0.0	5.0	0.0	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	89.4	12.0	11.9	0.0	134.0	134.9	32.4	0.0	0.0	47.6	0.0	53.5
LnGrp LOS	F	B	B	A	F	F	C	A	A	D	A	D
Approach Vol, veh/h	1283			881			3			528		
Approach Delay, s/veh	48.8			134.4			32.4			51.7		
Approach LOS	D			F			C			D		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	29.3		40.0	28.0	29.4		0.0	13.2				
Green Ext Time (p_c), s	0.0		0.0	0.0	1.2		0.0	4.7				
Intersection Summary												
HCM 6th Ctrl Delay	77.3											
HCM 6th LOS	E											

OPENING BASE YEAR (2026) WITH PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	75	421	73	79	336
Future Volume (vph)	67	75	421	73	79	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	79	88	495	86	93	395
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	88	495	86	93	395
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	47.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

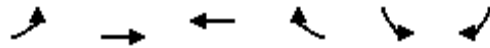
11/22/2021

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	75	421	73	79	336
Future Vol, veh/h	67	75	421	73	79	336
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	79	88	495	86	93	395
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1076	495	0	0	581	0
Stage 1	495	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	245	579	-	-	1003	-
Stage 1	617	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	222	579	-	-	1003	-
Mov Cap-2 Maneuver	222	-	-	-	-	-
Stage 1	560	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	20.6	0	1.7			
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 222 579 1003	-	-		
HCM Lane V/C Ratio	-	- 0.355 0.152 0.093	-	-		
HCM Control Delay (s)	-	- 29.9 12.3 9	-	-		
HCM Lane LOS	-	- D B A	-	-		
HCM 95th %tile Q(veh)	-	- 1.5 0.5 0.3	-	-		

Lanes, Volumes, Timings

2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	59	65	40	0	0	80
Future Volume (vph)	59	65	40	0	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.977				
Satd. Flow (prot)	0	1856	1900	0	1644	0
Flt Permitted		0.977				
Satd. Flow (perm)	0	1856	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	71	43	0	0	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	135	43	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	59	65	40	0	0	80
Future Vol, veh/h	59	65	40	0	0	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	64	71	43	0	0	87

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	43	0	0 242 43
Stage 1	-	-	- 43 -
Stage 2	-	-	- 199 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1579	-	- 751 1033
Stage 1	-	-	- 985 -
Stage 2	-	-	- 839 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1579	-	- 719 1033
Mov Cap-2 Maneuver	-	-	- 697 -
Stage 1	-	-	- 944 -
Stage 2	-	-	- 839 -

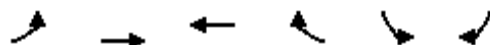
Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1033
HCM Lane V/C Ratio	0.041	-	-	-	0.084
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lanes, Volumes, Timings

3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	59	40	0	0	10
Future Volume (vph)	19	59	40	0	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	64	43	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	64	43	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	59	40	0	0	10
Future Vol, veh/h	19	59	40	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	21	64	43	0	0	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	43	0	0 149 43
Stage 1	-	-	- 43 -
Stage 2	-	-	- 106 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1579	-	- 848 1033
Stage 1	-	-	- 985 -
Stage 2	-	-	- 923 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1579	-	- 837 1033
Mov Cap-2 Maneuver	-	-	- 804 -
Stage 1	-	-	- 972 -
Stage 2	-	-	- 923 -

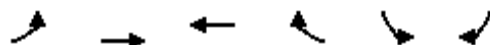
Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1033
HCM Lane V/C Ratio	0.013	-	-	-	0.011
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	52	40	0	0	12
Future Volume (vph)	23	52	40	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	57	43	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	57	43	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	52	40	0	0	12
Future Vol, veh/h	23	52	40	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	25	57	43	0	0	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	43	0	0 150 43
Stage 1	-	-	- 43 -
Stage 2	-	-	- 107 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1579	-	- 847 1033
Stage 1	-	-	- 985 -
Stage 2	-	-	- 922 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1579	-	- 833 1033
Mov Cap-2 Maneuver	-	-	- 800 -
Stage 1	-	-	- 969 -
Stage 2	-	-	- 922 -

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1033
HCM Lane V/C Ratio	0.016	-	-	-	0.013
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	628	0	0	484	246	9	1	2	140	0	344
Future Volume (vph)	322	628	0	0	484	246	9	1	2	140	0	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.949			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3426	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.849			0.750	
Satd. Flow (perm)	1805	3610	0	1900	3426	0	0	1576	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					74			2				358
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	335	654	0	0	504	256	9	1	2	146	0	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	335	654	0	0	760	0	0	12	0	0	146	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 1 With Project (EAGp1) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	21.3	59.0			30.7			27.0			27.0	27.0
Actuated g/C Ratio	0.21	0.59			0.31			0.27			0.27	0.27
v/c Ratio	0.87	0.31			0.69			0.03			0.38	0.51
Control Delay	60.0	10.7			32.8			24.7			35.4	14.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	60.0	10.7			32.8			24.7			35.4	14.3
LOS	E	B			C			C			D	B
Approach Delay		27.4			32.8			24.7			20.4	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 27.7

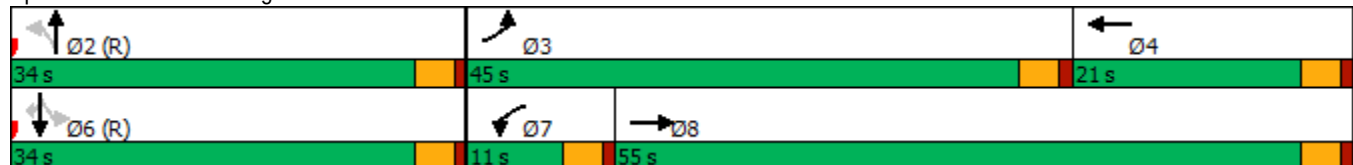
Intersection LOS: C

Intersection Capacity Utilization 66.1%

ICU Level of Service C

Analysis Period (min) 15

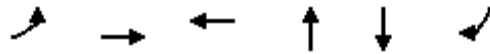
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	335	654	760	12	146	358
v/c Ratio	0.87	0.31	0.69	0.03	0.38	0.51
Control Delay	60.0	10.7	32.8	24.7	35.4	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.0	10.7	32.8	24.7	35.4	14.3
Queue Length 50th (ft)	207	102	202	5	82	50
Queue Length 95th (ft)	281	134	#339	19	144	132
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1102	426	384	697
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.31	0.69	0.03	0.38	0.51

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	322	628	0	0	484	246	9	1	2	140	0	344
Future Volume (veh/h)	322	628	0	0	484	246	9	1	2	140	0	344
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	335	654	0	0	504	256	9	1	2	146	0	358
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	349	1733	0	2	504	255	335	41	63	625	0	612
Arrive On Green	0.19	0.48	0.00	0.00	0.22	0.22	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2320	1174	717	107	165	1456	0	1610
Grp Volume(v), veh/h	335	654	0	0	392	368	12	0	0	146	0	358
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1689	988	0	0	1456	0	1610
Q Serve(g_s), s	18.3	11.5	0.0	0.0	21.7	21.7	0.1	0.0	0.0	0.0	0.0	17.7
Cycle Q Clear(g_c), s	18.3	11.5	0.0	0.0	21.7	21.7	6.5	0.0	0.0	6.4	0.0	17.7
Prop In Lane	1.00		0.00	1.00		0.69	0.75		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	349	1733	0	2	392	367	439	0	0	625	0	612
V/C Ratio(X)	0.96	0.38	0.00	0.00	1.00	1.01	0.03	0.00	0.00	0.23	0.00	0.59
Avail Cap(c_a), veh/h	688	1733	0	72	392	367	439	0	0	625	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.0	16.5	0.0	0.0	39.1	39.1	19.5	0.0	0.0	21.2	0.0	24.7
Incr Delay (d2), s/veh	14.6	0.6	0.0	0.0	45.4	48.3	0.1	0.0	0.0	0.9	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.4	4.8	0.0	0.0	14.4	13.7	0.2	0.0	0.0	2.5	0.0	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.6	17.1	0.0	0.0	84.5	87.4	19.6	0.0	0.0	22.1	0.0	28.8
LnGrp LOS	D	B	A	A	F	F	B	A	A	C	A	C
Approach Vol, veh/h	989			760			12			504		
Approach Delay, s/veh	29.8			85.9			19.6			26.8		
Approach LOS	C			F			B			C		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	45.0		26.3	28.7	45.0		0.0	55.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	30.0		41.0	17.0	30.0		7.0	51.0				
Max Q Clear Time (g_c+I1), s	9.5		21.3	24.7	20.7		0.0	14.5				
Green Ext Time (p_c), s	0.0		1.0	0.0	1.5		0.0	5.1				
Intersection Summary												
HCM 6th Ctrl Delay	47.9											
HCM 6th LOS	D											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	64	672	86	84	363
Future Volume (vph)	110	64	672	86	84	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	67	707	91	88	382
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	67	707	91	88	382
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	63.6%			ICU Level of Service B		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

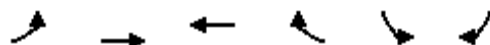
11/22/2021

Intersection						
Int Delay, s/veh	6.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	110	64	672	86	84	363
Future Vol, veh/h	110	64	672	86	84	363
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	116	67	707	91	88	382
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1265	707	0	0	798	0
Stage 1	707	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	189	439	-	-	833	-
Stage 1	493	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	169	439	-	-	833	-
Mov Cap-2 Maneuver	169	-	-	-	-	-
Stage 1	441	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	45.3	0	1.8			
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 169 439	833	-		
HCM Lane V/C Ratio	-	- 0.685 0.153	0.106	-		
HCM Control Delay (s)	-	- 63.1 14.7	9.8	-		
HCM Lane LOS	-	- F B	A	-		
HCM 95th %tile Q(veh)	-	- 4.1 0.5	0.4	-		

Lanes, Volumes, Timings

2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	104	31	89	0	0	57
Future Volume (vph)	104	31	89	0	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.963				
Satd. Flow (prot)	0	1830	1900	0	1644	0
Flt Permitted		0.963				
Satd. Flow (perm)	0	1830	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	34	97	0	0	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	147	97	0	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.3%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	104	31	89	0	0	57
Future Vol, veh/h	104	31	89	0	0	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	113	34	97	0	0	62

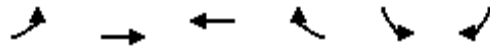
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	97	0	0 357 97
Stage 1	-	-	- 97 -
Stage 2	-	-	- 260 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1509	-	- 645 965
Stage 1	-	-	- 932 -
Stage 2	-	-	- 788 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1509	-	- 596 965
Mov Cap-2 Maneuver	-	-	- 600 -
Stage 1	-	-	- 861 -
Stage 2	-	-	- 788 -

Approach	EB	WB	SB
HCM Control Delay, s	5.8	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1509	-	-	-	965
HCM Lane V/C Ratio	0.075	-	-	-	0.064
HCM Control Delay (s)	7.6	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lanes, Volumes, Timings
3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	31	80	0	0	22
Future Volume (vph)	16	31	80	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	34	87	0	0	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	34	87	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	31	80	0	0	22
Future Vol, veh/h	16	31	80	0	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	34	87	0	0	24

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	87	0	0 155 87
Stage 1	-	-	- 87 -
Stage 2	-	-	- 68 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1522	-	- 841 977
Stage 1	-	-	- 941 -
Stage 2	-	-	- 960 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1522	-	- 832 977
Mov Cap-2 Maneuver	-	-	- 807 -
Stage 1	-	-	- 931 -
Stage 2	-	-	- 960 -

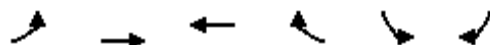
Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1522	-	-	-	977
HCM Lane V/C Ratio	0.011	-	-	-	0.024
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	31	70	0	0	25
Future Volume (vph)	19	31	70	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	34	76	0	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	34	76	0	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	31	70	0	0	25
Future Vol, veh/h	19	31	70	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	21	34	76	0	0	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	76	0	0 152 76
Stage 1	-	-	- 76 -
Stage 2	-	-	- 76 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1536	-	- 844 991
Stage 1	-	-	- 952 -
Stage 2	-	-	- 952 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1536	-	- 832 991
Mov Cap-2 Maneuver	-	-	- 807 -
Stage 1	-	-	- 939 -
Stage 2	-	-	- 952 -

Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1536	-	-	-	991
HCM Lane V/C Ratio	0.013	-	-	-	0.027
HCM Control Delay (s)	7.4	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	564	603	3	0	609	192	1	0	2	153	0	336
Future Volume (vph)	564	603	3	0	609	192	1	0	2	153	0	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.964			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3480	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.960			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3480	0	0	1660	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			33			85				373
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	627	670	3	0	677	213	1	0	2	170	0	373
Shared Lane Traffic (%)												
Lane Group Flow (vph)	627	673	0	0	890	0	0	3	0	0	170	373
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 1 With Project (EAGp1) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
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Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.08	0.31			1.14			0.01			0.43	0.52
Control Delay	99.0	11.8			117.1			0.0			42.0	9.8
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	99.0	11.8			117.1			0.0			42.0	9.8
LOS	F	B			F			A			D	A
Approach Delay		53.8			117.1						19.9	
Approach LOS		D			F						B	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 67.6

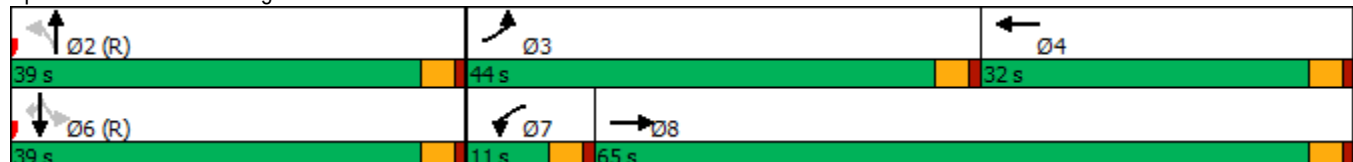
Intersection LOS: E

Intersection Capacity Utilization 86.9%

ICU Level of Service E

Analysis Period (min) 15

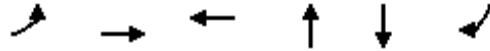
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	627	673	890	3	170	373
v/c Ratio	1.08	0.31	1.14	0.01	0.43	0.52
Control Delay	99.0	11.8	117.1	0.0	42.0	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	99.0	11.8	117.1	0.0	42.0	9.8
Queue Length 50th (ft)	~519	120	~395	0	100	1
Queue Length 95th (ft)	#741	155	#526	0	185	127
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	782	523	399	718
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.31	1.14	0.01	0.43	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	564	603	3	0	609	192	1	0	2	153	0	336
Future Volume (veh/h)	564	603	3	0	609	192	1	0	2	153	0	336
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	627	670	3	0	677	213	1	0	2	170	0	373
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2211	10	2	587	185	58	20	72	276	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3686	17	1810	2702	850	58	71	258	767	0	1610
Grp Volume(v), veh/h	627	328	345	0	452	438	3	0	0	170	0	373
Grp Sat Flow(s),veh/h/ln	1810	1805	1897	1810	1805	1747	387	0	0	767	0	1610
Q Serve(g_s), s	37.0	10.2	10.2	0.0	25.0	25.0	0.1	0.0	0.0	0.4	0.0	25.0
Cycle Q Clear(g_c), s	37.0	10.2	10.2	0.0	25.0	25.0	27.9	0.0	0.0	28.1	0.0	25.0
Prop In Lane	1.00		0.01	1.00		0.49	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	380	149	0	0	276	0	448
V/C Ratio(X)	1.08	0.30	0.30	0.00	1.15	1.15	0.02	0.00	0.00	0.62	0.00	0.83
Avail Cap(c_a), veh/h	582	1083	1138	63	392	380	149	0	0	276	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.2	11.2	0.0	45.0	45.0	32.5	0.0	0.0	40.3	0.0	39.0
Incr Delay (d2), s/veh	59.7	0.7	0.7	0.0	93.9	94.8	0.2	0.0	0.0	9.9	0.0	16.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.8	4.2	4.4	0.0	21.3	20.7	0.1	0.0	0.0	5.4	0.0	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.7	12.0	11.9	0.0	138.9	139.8	32.7	0.0	0.0	50.2	0.0	55.4
LnGrp LOS	F	B	B	A	F	F	C	A	A	D	A	E
Approach Vol, veh/h	1300			890			3			543		
Approach Delay, s/veh	53.8			139.3			32.7			53.7		
Approach LOS	D			F			C			D		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	30.9		40.0	28.0	31.1		0.0	13.2				
Green Ext Time (p_c), s	0.0		0.0	0.0	0.9		0.0	4.7				
Intersection Summary												
HCM 6th Ctrl Delay	81.6											
HCM 6th LOS	F											

OPENING BASE YEAR (2031) WITHOUT PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	12	523	52	5	450
Future Volume (vph)	32	12	523	52	5	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	38	14	615	61	6	529
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	14	615	61	6	529
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	42.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	12	523	52	5	450
Future Vol, veh/h	32	12	523	52	5	450
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	38	14	615	61	6	529

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1156	615	0
Stage 1	615	-	-
Stage 2	541	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	219	495	-
Stage 1	543	-	-
Stage 2	588	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	218	495	-
Mov Cap-2 Maneuver	218	-	-
Stage 1	540	-	-
Stage 2	588	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 218 495	925	-
HCM Lane V/C Ratio	-	- 0.173 0.029	0.006	-
HCM Control Delay (s)	-	- 24.9 12.5	8.9	-
HCM Lane LOS	-	- C B	A	-
HCM 95th %tile Q(veh)	-	- 0.6 0.1	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	694	0	0	534	268	10	1	2	145	0	362
Future Volume (vph)	349	694	0	0	534	268	10	1	2	145	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.950			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3430	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.839			0.749	
Satd. Flow (perm)	1805	3610	0	1900	3430	0	0	1561	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					73			2				377
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	364	723	0	0	556	279	10	1	2	151	0	377
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	723	0	0	835	0	0	13	0	0	151	377
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua Mansa/Wilson) Project Opening Base Year 2 (EAG2) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
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Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	23.0	59.0			29.0			27.0			27.0	27.0
Actuated g/C Ratio	0.23	0.59			0.29			0.27			0.27	0.27
v/c Ratio	0.88	0.34			0.80			0.03			0.39	0.53
Control Delay	58.6	11.1			38.2			24.6			33.5	6.1
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	58.6	11.1			38.2			24.6			33.5	6.1
LOS	E	B			D			C			C	A
Approach Delay		27.0			38.2			24.6			14.0	
Approach LOS		C			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 28.0

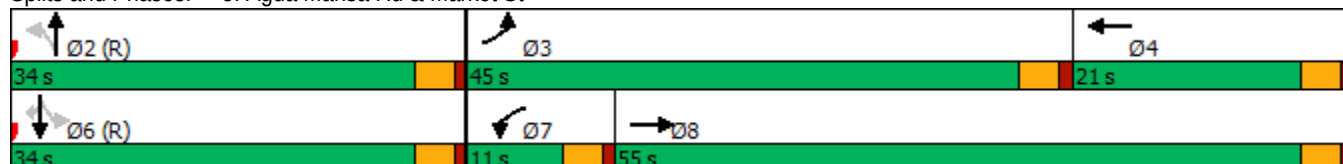
Intersection LOS: C

Intersection Capacity Utilization 69.8%

ICU Level of Service C

Analysis Period (min) 15

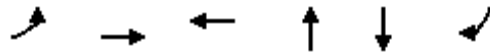
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	364	723	835	13	151	377
v/c Ratio	0.88	0.34	0.80	0.03	0.39	0.53
Control Delay	58.6	11.1	38.2	24.6	33.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	11.1	38.2	24.6	33.5	6.1
Queue Length 50th (ft)	225	115	237	5	79	0
Queue Length 95th (ft)	299	151	#419	20	138	69
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1047	422	384	711
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.34	0.80	0.03	0.39	0.53

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	694	0	0	534	268	10	1	2	145	0	362
Future Volume (veh/h)	349	694	0	0	534	268	10	1	2	145	0	362
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	364	723	0	0	556	279	10	1	2	151	0	377
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	379	1733	0	2	467	234	335	37	56	626	0	612
Arrive On Green	0.21	0.48	0.00	0.00	0.20	0.20	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2329	1166	714	96	147	1459	0	1610
Grp Volume(v), veh/h	364	723	0	0	431	404	13	0	0	151	0	377
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1690	958	0	0	1459	0	1610
Q Serve(g_s), s	19.9	13.0	0.0	0.0	20.1	20.1	0.1	0.0	0.0	0.0	0.0	19.0
Cycle Q Clear(g_c), s	19.9	13.0	0.0	0.0	20.1	20.1	6.7	0.0	0.0	6.6	0.0	19.0
Prop In Lane	1.00		0.00	1.00		0.69	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	379	1733	0	2	362	339	428	0	0	626	0	612
V/C Ratio(X)	0.96	0.42	0.00	0.00	1.19	1.19	0.03	0.00	0.00	0.24	0.00	0.62
Avail Cap(c_a), veh/h	688	1733	0	72	362	339	428	0	0	626	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	16.9	0.0	0.0	40.0	40.0	19.5	0.0	0.0	21.3	0.0	25.1
Incr Delay (d2), s/veh	15.9	0.7	0.0	0.0	109.8	112.2	0.1	0.0	0.0	0.9	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	5.4	0.0	0.0	19.8	18.8	0.2	0.0	0.0	2.6	0.0	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	17.6	0.0	0.0	149.8	152.2	19.7	0.0	0.0	22.2	0.0	29.7
LnGrp LOS	E	B	A	A	F	F	B	A	A	C	A	C
Approach Vol, veh/h	1087			835			13			528		
Approach Delay, s/veh	30.2			151.0			19.7			27.5		
Approach LOS	C			F			B			C		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	45.0			27.9			27.1			45.0		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	30.0			41.0			17.0			30.0		
Max Q Clear Time (g_c+I1), s	9.7			22.9			23.1			22.0		
Green Ext Time (p_c), s	0.0			1.0			0.0			1.5		
Intersection Summary												
HCM 6th Ctrl Delay	70.5											
HCM 6th LOS	E											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	23	783	26	9	474
Future Volume (vph)	54	23	783	26	9	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	24	824	27	9	499
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	24	824	27	9	499
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	56.2%			ICU Level of Service B		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	23	783	26	9	474
Future Vol, veh/h	54	23	783	26	9	474
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	57	24	824	27	9	499

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1341	824	0
Stage 1	824	-	-
Stage 2	517	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	170	376	-
Stage 1	434	-	-
Stage 2	603	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	168	376	-
Mov Cap-2 Maneuver	168	-	-
Stage 1	429	-	-
Stage 2	603	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.5	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 168 376	796	-
HCM Lane V/C Ratio	-	- 0.338 0.064	0.012	-
HCM Control Delay (s)	-	- 37 15.2	9.6	-
HCM Lane LOS	-	- E C	A	-
HCM 95th %tile Q(veh)	-	- 1.4 0.2	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	606	666	4	0	673	204	1	0	2	163	0	362
Future Volume (vph)	606	666	4	0	673	204	1	0	2	163	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.965			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3484	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.959			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3484	0	0	1658	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			32			85				402
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	673	740	4	0	748	227	1	0	2	181	0	402
Shared Lane Traffic (%)												
Lane Group Flow (vph)	673	744	0	0	975	0	0	3	0	0	181	402
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua Mansa/Wilson) Project Opening Base Year 2 (EAG2) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.16	0.34			1.25			0.01			0.45	0.54
Control Delay	126.4	12.1			159.0			0.0			46.1	13.0
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	126.4	12.1			159.0			0.0			46.1	13.0
LOS	F	B			F			A			D	B
Approach Delay		66.4			159.0						23.2	
Approach LOS		E			F						C	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 88.2

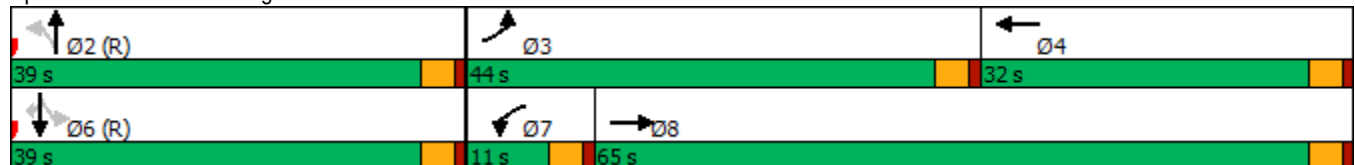
Intersection LOS: F

Intersection Capacity Utilization 91.9%

ICU Level of Service F

Analysis Period (min) 15

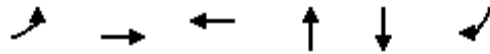
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	673	744	975	3	181	402
v/c Ratio	1.16	0.34	1.25	0.01	0.45	0.54
Control Delay	126.4	12.1	159.0	0.0	46.1	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	126.4	12.1	159.0	0.0	46.1	13.0
Queue Length 50th (ft)	~590	136	~466	0	119	0
Queue Length 95th (ft)	#818	174	#598	0	201	152
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	782	522	399	739
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.34	1.25	0.01	0.45	0.54

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	606	666	4	0	673	204	1	0	2	163	0	362
Future Volume (veh/h)	606	666	4	0	673	204	1	0	2	163	0	362
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	673	740	4	0	748	227	1	0	2	181	0	402
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2209	12	2	593	180	46	20	48	254	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3682	20	1810	2728	828	16	71	172	686	0	1610
Grp Volume(v), veh/h	673	363	381	0	495	480	3	0	0	181	0	402
Grp Sat Flow(s),veh/h/ln	1810	1805	1896	1810	1805	1751	258	0	0	686	0	1610
Q Serve(g_s), s	37.0	11.6	11.6	0.0	25.0	25.0	0.1	0.0	0.0	0.4	0.0	27.6
Cycle Q Clear(g_c), s	37.0	11.6	11.6	0.0	25.0	25.0	30.9	0.0	0.0	31.1	0.0	27.6
Prop In Lane	1.00		0.01	1.00		0.47	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	381	114	0	0	254	0	448
V/C Ratio(X)	1.16	0.33	0.34	0.00	1.26	1.26	0.03	0.00	0.00	0.71	0.00	0.90
Avail Cap(c_a), veh/h	582	1083	1138	63	392	381	114	0	0	254	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.5	11.5	0.0	45.0	45.0	33.2	0.0	0.0	41.4	0.0	39.9
Incr Delay (d2), s/veh	88.4	0.8	0.8	0.0	136.6	137.1	0.4	0.0	0.0	15.8	0.0	23.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.4	4.7	5.0	0.0	26.0	25.3	0.1	0.0	0.0	6.2	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	127.4	12.3	12.3	0.0	181.6	182.1	33.6	0.0	0.0	57.2	0.0	63.2
LnGrp LOS	F	B	B	A	F	F	C	A	A	E	A	E
Approach Vol, veh/h	1417			975			3			583		
Approach Delay, s/veh	67.0			181.9			33.6			61.4		
Approach LOS	E			F			C			E		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	33.9		40.0	28.0	34.1		0.0	14.6				
Green Ext Time (p_c), s	0.0		0.0	0.0	0.3		0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay	103.5											
HCM 6th LOS	F											

OPENING BASE YEAR (2031) WITH PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	73	77	470	81	81	379
Future Volume (vph)	73	77	470	81	81	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	86	91	553	95	95	446
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	91	553	95	95	446
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	73	77	470	81	81	379
Future Vol, veh/h	73	77	470	81	81	379
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	86	91	553	95	95	446

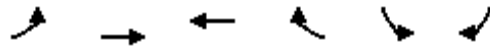
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1189	553	0
Stage 1	553	-	-
Stage 2	636	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	210	537	-
Stage 1	580	-	-
Stage 2	531	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	189	537	-
Mov Cap-2 Maneuver	189	-	-
Stage 1	522	-	-
Stage 2	531	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.7	0	1.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 189 537	947	-
HCM Lane V/C Ratio	-	- 0.454 0.169	0.101	-
HCM Control Delay (s)	-	- 39 13.1	9.2	-
HCM Lane LOS	-	- E B	A	-
HCM 95th %tile Q(veh)	-	- 2.1 0.6	0.3	-

Lanes, Volumes, Timings
2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Volume (vph)	59	74	44	0	0	84
Future Volume (vph)	59	74	44	0	0	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.978				
Satd. Flow (prot)	0	1858	1900	0	1644	0
Flt Permitted		0.978				
Satd. Flow (perm)	0	1858	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	80	48	0	0	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	144	48	0	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	59	74	44	0	0	84
Future Vol, veh/h	59	74	44	0	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	64	80	48	0	0	91

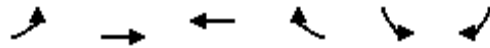
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	48	0	0 256 48
Stage 1	-	-	- 48 -
Stage 2	-	-	- 208 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1572	-	- 737 1027
Stage 1	-	-	- 980 -
Stage 2	-	-	- 832 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1572	-	- 705 1027
Mov Cap-2 Maneuver	-	-	- 689 -
Stage 1	-	-	- 938 -
Stage 2	-	-	- 832 -

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	1027
HCM Lane V/C Ratio	0.041	-	-	-	0.089
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lanes, Volumes, Timings
3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	66	44	0	0	10
Future Volume (vph)	21	66	44	0	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	72	48	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	72	48	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 22.8% ICU Level of Service A						
Analysis Period (min) 15						

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	66	44	0	0	10
Future Vol, veh/h	21	66	44	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	72	48	0	0	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	48	0	0 166 48
Stage 1	-	-	- 48 -
Stage 2	-	-	- 118 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1572	-	- 829 1027
Stage 1	-	-	- 980 -
Stage 2	-	-	- 912 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1572	-	- 817 1027
Mov Cap-2 Maneuver	-	-	- 790 -
Stage 1	-	-	- 965 -
Stage 2	-	-	- 912 -

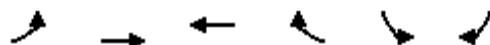
Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	1027
HCM Lane V/C Ratio	0.015	-	-	-	0.011
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	57	44	0	0	12
Future Volume (vph)	25	57	44	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	62	48	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	62	48	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	57	44	0	0	12
Future Vol, veh/h	25	57	44	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	27	62	48	0	0	13
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	48	0	-	0	164	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	116	-
Critical Hdwy	4.1	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.2	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1572	-	-	-	831	1027
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	914	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1572	-	-	-	817	1027
Mov Cap-2 Maneuver	-	-	-	-	789	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	914	-
Approach	EB	WB		SB		
HCM Control Delay, s	2.2	0		8.6		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1572	-	-	-	1027	
HCM Lane V/C Ratio	0.017	-	-	-	0.013	
HCM Control Delay (s)	7.3	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0	

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	694	0	0	534	272	10	1	2	155	0	380
Future Volume (vph)	357	694	0	0	534	272	10	1	2	155	0	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.949			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3426	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.836			0.749	
Satd. Flow (perm)	1805	3610	0	1900	3426	0	0	1555	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					75			2				396
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	372	723	0	0	556	283	10	1	2	161	0	396
Shared Lane Traffic (%)												
Lane Group Flow (vph)	372	723	0	0	839	0	0	13	0	0	161	396
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 2 With Project (EAGp2) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	23.4	59.0			28.6			27.0			27.0	27.0
Actuated g/C Ratio	0.23	0.59			0.29			0.27			0.27	0.27
v/c Ratio	0.88	0.34			0.81			0.03			0.42	0.55
Control Delay	58.4	11.1			39.2			24.6			37.9	11.5
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	58.4	11.1			39.2			24.6			37.9	11.5
LOS	E	B			D			C			D	B
Approach Delay		27.1			39.2			24.6			19.2	
Approach LOS		C			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.4

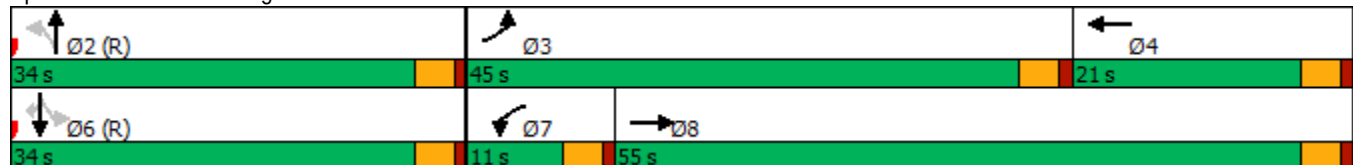
Intersection LOS: C

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

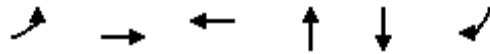
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	372	723	839	13	161	396
v/c Ratio	0.88	0.34	0.81	0.03	0.42	0.55
Control Delay	58.4	11.1	39.2	24.6	37.9	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	11.1	39.2	24.6	37.9	11.5
Queue Length 50th (ft)	230	115	240	5	89	7
Queue Length 95th (ft)	304	151	#427	20	152	114
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1032	421	384	725
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.34	0.81	0.03	0.42	0.55

Intersection Summary

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

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	357	694	0	0	534	272	10	1	2	155	0	380
Future Volume (veh/h)	357	694	0	0	534	272	10	1	2	155	0	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	372	723	0	0	556	283	10	1	2	161	0	396
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	387	1733	0	2	454	231	326	36	54	625	0	612
Arrive On Green	0.21	0.48	0.00	0.00	0.20	0.20	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2316	1177	690	94	143	1456	0	1610
Grp Volume(v), veh/h	372	723	0	0	433	406	13	0	0	161	0	396
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1688	926	0	0	1456	0	1610
Q Serve(g_s), s	20.3	13.0	0.0	0.0	19.6	19.6	0.1	0.0	0.0	0.0	0.0	20.2
Cycle Q Clear(g_c), s	20.3	13.0	0.0	0.0	19.6	19.6	7.3	0.0	0.0	7.2	0.0	20.2
Prop In Lane	1.00		0.00	1.00		0.70	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	387	1733	0	2	354	331	416	0	0	625	0	612
V/C Ratio(X)	0.96	0.42	0.00	0.00	1.22	1.23	0.03	0.00	0.00	0.26	0.00	0.65
Avail Cap(c_a), veh/h	688	1733	0	72	354	331	416	0	0	625	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	16.9	0.0	0.0	40.2	40.2	19.6	0.0	0.0	21.5	0.0	25.5
Incr Delay (d2), s/veh	16.5	0.7	0.0	0.0	123.6	126.0	0.1	0.0	0.0	1.0	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	5.4	0.0	0.0	20.7	19.6	0.2	0.0	0.0	2.7	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.3	17.6	0.0	0.0	163.8	166.2	19.7	0.0	0.0	22.5	0.0	30.7
LnGrp LOS	E	B	A	A	F	F	B	A	A	C	A	C
Approach Vol, veh/h	1095			839			13			557		
Approach Delay, s/veh	30.5			165.0			19.7			28.3		
Approach LOS	C			F			B			C		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	45.0		28.4	26.6	45.0		0.0	55.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	30.0		41.0	17.0	30.0		7.0	51.0				
Max Q Clear Time (g_c+I1), s	10.3		23.3	22.6	23.2		0.0	16.0				
Green Ext Time (p_c), s	0.0		1.1	0.0	1.4		0.0	5.8				
Intersection Summary												
HCM 6th Ctrl Delay	75.0											
HCM 6th LOS	E											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	118	67	746	92	86	408
Future Volume (vph)	118	67	746	92	86	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	124	71	785	97	91	429
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	71	785	97	91	429
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	68.1%			ICU Level of Service C		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 10

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	118	67	746	92	86	408
Future Vol, veh/h	118	67	746	92	86	408
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	124	71	785	97	91	429

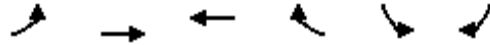
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1396	785	0
Stage 1	785	-	-
Stage 2	611	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	157	396	-
Stage 1	453	-	-
Stage 2	546	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	139	396	-
Mov Cap-2 Maneuver	139	-	-
Stage 1	400	-	-
Stage 2	546	-	-

Approach	WB	NB	SB
HCM Control Delay, s	77.1	0	1.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 139 396	775	-
HCM Lane V/C Ratio	-	- 0.894 0.178	0.117	-
HCM Control Delay (s)	-	- 111.8 16.1	10.3	-
HCM Lane LOS	-	- F C	B	-
HCM 95th %tile Q(veh)	-	- 6 0.6	0.4	-

Lanes, Volumes, Timings
2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	104	38	96	0	0	61
Future Volume (vph)	104	38	96	0	0	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.965				
Satd. Flow (prot)	0	1834	1900	0	1644	0
Flt Permitted		0.965				
Satd. Flow (perm)	0	1834	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	41	104	0	0	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	154	104	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	104	38	96	0	0	61
Future Vol, veh/h	104	38	96	0	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	113	41	104	0	0	66

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	104	0	0 371 104
Stage 1	-	-	- 104 -
Stage 2	-	-	- 267 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1500	-	- 634 956
Stage 1	-	-	- 925 -
Stage 2	-	-	- 782 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1500	-	- 585 956
Mov Cap-2 Maneuver	-	-	- 593 -
Stage 1	-	-	- 854 -
Stage 2	-	-	- 782 -

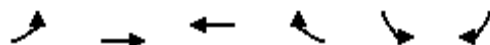
Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1500	-	-	-	956
HCM Lane V/C Ratio	0.075	-	-	-	0.069
HCM Control Delay (s)	7.6	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lanes, Volumes, Timings

3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	18	36	87	0	0	22
Future Volume (vph)	18	36	87	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	39	95	0	0	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	39	95	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	36	87	0	0	22
Future Vol, veh/h	18	36	87	0	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	20	39	95	0	0	24

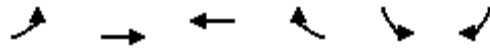
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	95	0	0 174 95
Stage 1	-	-	- 95 -
Stage 2	-	-	- 79 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1512	-	- 821 967
Stage 1	-	-	- 934 -
Stage 2	-	-	- 949 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1512	-	- 810 967
Mov Cap-2 Maneuver	-	-	- 792 -
Stage 1	-	-	- 922 -
Stage 2	-	-	- 949 -

Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1512	-	-	-	967
HCM Lane V/C Ratio	0.013	-	-	-	0.025
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶		↶	
Traffic Volume (vph)	21	34	77	0	0	25
Future Volume (vph)	21	34	77	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	37	84	0	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	37	84	0	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 22.8%				ICU Level of Service A		
Analysis Period (min) 15						

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	34	77	0	0	25
Future Vol, veh/h	21	34	77	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	37	84	0	0	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	84	0	0 167 84
Stage 1	-	-	- 84 -
Stage 2	-	-	- 83 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1526	-	- 828 981
Stage 1	-	-	- 944 -
Stage 2	-	-	- 945 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1526	-	- 816 981
Mov Cap-2 Maneuver	-	-	- 795 -
Stage 1	-	-	- 930 -
Stage 2	-	-	- 945 -

Approach	EB	WB	SB
HCM Control Delay, s	2.8	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1526	-	-	-	981
HCM Lane V/C Ratio	0.015	-	-	-	0.028
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	623	666	4	0	673	213	1	0	2	169	0	372
Future Volume (vph)	623	666	4	0	673	213	1	0	2	169	0	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.964			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3480	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.958			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3480	0	0	1656	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			34			85				413
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	692	740	4	0	748	237	1	0	2	188	0	413
Shared Lane Traffic (%)												
Lane Group Flow (vph)	692	744	0	0	985	0	0	3	0	0	188	413
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 2 With Project (EAGp2) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.19	0.34			1.26			0.01			0.47	0.55
Control Delay	138.7	12.1			163.4			0.0			45.4	11.9
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	138.7	12.1			163.4			0.0			45.4	11.9
LOS	F	B			F			A			D	B
Approach Delay		73.1			163.4						22.4	
Approach LOS		E			F						C	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.26

Intersection Signal Delay: 92.3

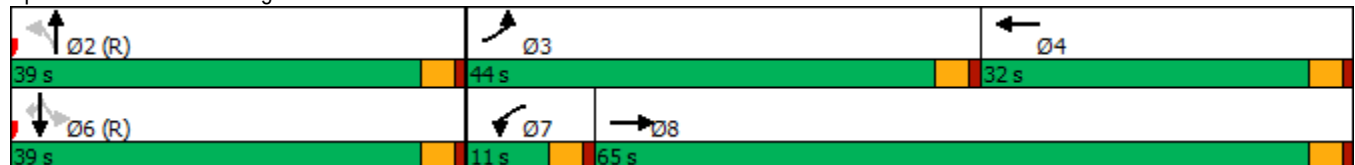
Intersection LOS: F

Intersection Capacity Utilization 93.5%

ICU Level of Service F

Analysis Period (min) 15

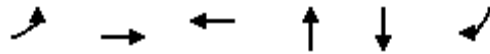
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	692	744	985	3	188	413
v/c Ratio	1.19	0.34	1.26	0.01	0.47	0.55
Control Delay	138.7	12.1	163.4	0.0	45.4	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	138.7	12.1	163.4	0.0	45.4	11.9
Queue Length 50th (ft)	~619	136	~473	0	123	0
Queue Length 95th (ft)	#849	174	#607	0	204	143
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	783	522	399	747
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.34	1.26	0.01	0.47	0.55

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	623	666	4	0	673	213	1	0	2	169	0	372
Future Volume (veh/h)	623	666	4	0	673	213	1	0	2	169	0	372
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	692	740	4	0	748	237	1	0	2	188	0	413
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2209	12	2	586	186	42	20	39	244	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3682	20	1810	2697	854	0	71	141	651	0	1610
Grp Volume(v), veh/h	692	363	381	0	501	484	3	0	0	188	0	413
Grp Sat Flow(s),veh/h/ln	1810	1805	1896	1810	1805	1746	212	0	0	651	0	1610
Q Serve(g_s), s	37.0	11.6	11.6	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	28.6
Cycle Q Clear(g_c), s	37.0	11.6	11.6	0.0	25.0	25.0	32.0	0.0	0.0	32.0	0.0	28.6
Prop In Lane	1.00		0.01	1.00		0.49	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	380	101	0	0	244	0	448
V/C Ratio(X)	1.19	0.33	0.34	0.00	1.28	1.28	0.03	0.00	0.00	0.77	0.00	0.92
Avail Cap(c_a), veh/h	582	1083	1138	63	392	380	101	0	0	244	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.5	11.5	0.0	45.0	45.0	33.4	0.0	0.0	42.1	0.0	40.3
Incr Delay (d2), s/veh	101.2	0.8	0.8	0.0	142.6	143.2	0.5	0.0	0.0	20.7	0.0	26.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.5	4.7	5.0	0.0	26.6	25.8	0.1	0.0	0.0	6.7	0.0	14.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	140.2	12.3	12.3	0.0	187.6	188.2	34.0	0.0	0.0	62.8	0.0	67.1
LnGrp LOS	F	B	B	A	F	F	C	A	A	E	A	E
Approach Vol, veh/h	1436			985			3			601		
Approach Delay, s/veh	74.0			187.9			34.0			65.8		
Approach LOS	E			F			C			E		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	35.0		40.0	28.0	35.0		0.0	14.6				
Green Ext Time (p_c), s	0.0		0.0	0.0	0.0		0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay	109.4											
HCM 6th LOS	F											

OPENING YEAR (2026) WITHOUT PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	11	587	51	8	466
Future Volume (vph)	29	11	587	51	8	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	34	13	691	60	9	548
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	13	691	60	9	548
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	45.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	11	587	51	8	466
Future Vol, veh/h	29	11	587	51	8	466
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	34	13	691	60	9	548

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1257	691	0
Stage 1	691	-	-
Stage 2	566	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	191	448	-
Stage 1	501	-	-
Stage 2	572	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	189	448	-
Mov Cap-2 Maneuver	189	-	-
Stage 1	496	-	-
Stage 2	572	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.1	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 189 448	868	-
HCM Lane V/C Ratio	-	- 0.181 0.029	0.011	-
HCM Control Delay (s)	-	- 28.2 13.3	9.2	-
HCM Lane LOS	-	- D B	A	-
HCM 95th %tile Q(veh)	-	- 0.6 0.1	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	363	628	0	0	484	313	9	1	2	147	0	371
Future Volume (vph)	363	628	0	0	484	313	9	1	2	147	0	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.941			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3397	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.847			0.750	
Satd. Flow (perm)	1805	3610	0	1900	3397	0	0	1572	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					123			2				386
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	378	654	0	0	504	326	9	1	2	153	0	386
Shared Lane Traffic (%)												
Lane Group Flow (vph)	378	654	0	0	830	0	0	12	0	0	153	386
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 1 (EAGC1) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
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Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	23.8	59.0			28.2			27.0			27.0	27.0
Actuated g/C Ratio	0.24	0.59			0.28			0.27			0.27	0.27
v/c Ratio	0.88	0.31			0.79			0.03			0.40	0.54
Control Delay	58.1	10.7			36.3			24.7			37.7	12.6
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	58.1	10.7			36.3			24.7			37.7	12.6
LOS	E	B			D			C			D	B
Approach Delay		28.1			36.3			24.7			19.7	
Approach LOS		C			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.0

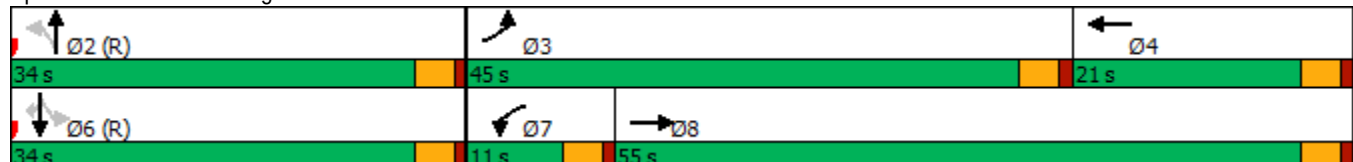
Intersection LOS: C

Intersection Capacity Utilization 71.0%

ICU Level of Service C

Analysis Period (min) 15

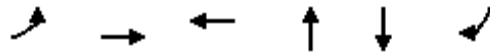
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	378	654	830	12	153	386
v/c Ratio	0.88	0.31	0.79	0.03	0.40	0.54
Control Delay	58.1	10.7	36.3	24.7	37.7	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	10.7	36.3	24.7	37.7	12.6
Queue Length 50th (ft)	233	102	222	5	84	11
Queue Length 95th (ft)	308	134	#399	19	149	123
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1047	425	384	717
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.31	0.79	0.03	0.40	0.54

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	363	628	0	0	484	313	9	1	2	147	0	371
Future Volume (veh/h)	363	628	0	0	484	313	9	1	2	147	0	371
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	378	654	0	0	504	326	9	1	2	153	0	386
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	393	1733	0	2	405	261	326	39	60	624	0	612
Arrive On Green	0.22	0.48	0.00	0.00	0.19	0.19	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2103	1357	692	104	159	1453	0	1610
Grp Volume(v), veh/h	378	654	0	0	432	398	12	0	0	153	0	386
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1656	955	0	0	1453	0	1610
Q Serve(g_s), s	20.7	11.5	0.0	0.0	19.3	19.3	0.1	0.0	0.0	0.0	0.0	19.5
Cycle Q Clear(g_c), s	20.7	11.5	0.0	0.0	19.3	19.3	7.0	0.0	0.0	6.9	0.0	19.5
Prop In Lane	1.00		0.00	1.00		0.82	0.75		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	393	1733	0	2	348	319	426	0	0	624	0	612
V/C Ratio(X)	0.96	0.38	0.00	0.00	1.24	1.25	0.03	0.00	0.00	0.25	0.00	0.63
Avail Cap(c_a), veh/h	688	1733	0	72	348	319	426	0	0	624	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.7	16.5	0.0	0.0	40.4	40.4	19.5	0.0	0.0	21.4	0.0	25.3
Incr Delay (d2), s/veh	16.8	0.6	0.0	0.0	131.7	134.8	0.1	0.0	0.0	0.9	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.8	4.8	0.0	0.0	21.1	19.7	0.2	0.0	0.0	2.6	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.5	17.1	0.0	0.0	172.1	175.2	19.7	0.0	0.0	22.3	0.0	30.2
LnGrp LOS	E	B	A	A	F	F	B	A	A	C	A	C
Approach Vol, veh/h	1032			830			12			539		
Approach Delay, s/veh	31.2			173.6			19.7			27.9		
Approach LOS	C			F			B			C		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	45.0		28.7	26.3	45.0		0.0	55.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	30.0		41.0	17.0	30.0		7.0	51.0				
Max Q Clear Time (g_c+I1), s	10.0		23.7	22.3	22.5		0.0	14.5				
Green Ext Time (p_c), s	0.0		1.1	0.0	1.4		0.0	5.1				
Intersection Summary												
HCM 6th Ctrl Delay	79.4											
HCM 6th LOS	E											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	52	24	774	24	9	543
Future Volume (vph)	52	24	774	24	9	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	25	815	25	9	572
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	25	815	25	9	572
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	55.7%			ICU Level of Service B		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	24	774	24	9	543
Future Vol, veh/h	52	24	774	24	9	543
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	55	25	815	25	9	572
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1405	815	0	0	840	0
Stage 1	815	-	-	-	-	-
Stage 2	590	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	155	381	-	-	804	-
Stage 1	439	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	153	381	-	-	804	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	32.9	0	0.2			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 153 381	804	-		
HCM Lane V/C Ratio	-	- 0.358 0.066	0.012	-		
HCM Control Delay (s)	-	- 41.1 15.1	9.5	-		
HCM Lane LOS	-	- E C	A	-		
HCM 95th %tile Q(veh)	-	- 1.5 0.2	0	-		

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	596	603	3	0	609	203	1	0	2	214	0	379
Future Volume (vph)	596	603	3	0	609	203	1	0	2	214	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.962			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3473	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.954			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3473	0	0	1649	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			36			85				421
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	662	670	3	0	677	226	1	0	2	238	0	421
Shared Lane Traffic (%)												
Lane Group Flow (vph)	662	673	0	0	903	0	0	3	0	0	238	421
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua Mansa/Wilson) Project Opening Year 1 (EAGC1) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
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Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.14	0.31			1.15			0.01			0.60	0.56
Control Delay	119.5	11.8			122.5			0.0			51.7	13.6
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	119.5	11.8			122.5			0.0			51.7	13.6
LOS	F	B			F			A			D	B
Approach Delay		65.2			122.5						27.3	
Approach LOS		E			F						C	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 74.4

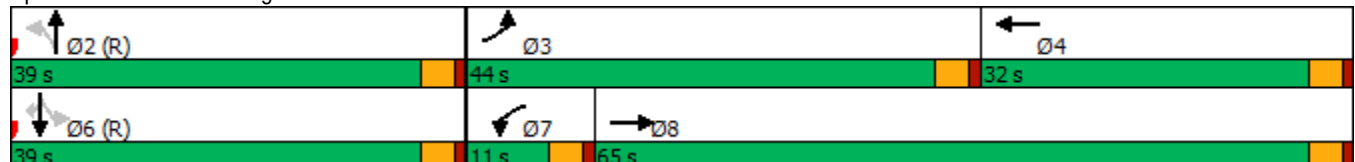
Intersection LOS: E

Intersection Capacity Utilization 92.4%

ICU Level of Service F

Analysis Period (min) 15

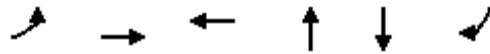
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	662	673	903	3	238	421
v/c Ratio	1.14	0.31	1.15	0.01	0.60	0.56
Control Delay	119.5	11.8	122.5	0.0	51.7	13.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.5	11.8	122.5	0.0	51.7	13.6
Queue Length 50th (ft)	~573	120	~405	0	167	0
Queue Length 95th (ft)	#800	155	#536	0	262	165
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	783	520	399	753
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.31	1.15	0.01	0.60	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	596	603	3	0	609	203	1	0	2	214	0	379
Future Volume (veh/h)	596	603	3	0	609	203	1	0	2	214	0	379
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	662	670	3	0	677	226	1	0	2	238	0	421
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2211	10	2	578	193	42	20	39	244	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3686	17	1810	2658	887	0	71	141	651	0	1610
Grp Volume(v), veh/h	662	328	345	0	460	443	3	0	0	238	0	421
Grp Sat Flow(s),veh/h/ln	1810	1805	1897	1810	1805	1740	212	0	0	651	0	1610
Q Serve(g_s), s	37.0	10.2	10.2	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	29.4
Cycle Q Clear(g_c), s	37.0	10.2	10.2	0.0	25.0	25.0	32.0	0.0	0.0	32.0	0.0	29.4
Prop In Lane	1.00		0.01	1.00		0.51	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	378	101	0	0	244	0	448
V/C Ratio(X)	1.14	0.30	0.30	0.00	1.17	1.17	0.03	0.00	0.00	0.98	0.00	0.94
Avail Cap(c_a), veh/h	582	1083	1138	63	392	378	101	0	0	244	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.2	11.2	0.0	45.0	45.0	33.4	0.0	0.0	45.3	0.0	40.6
Incr Delay (d2), s/veh	81.2	0.7	0.7	0.0	101.1	102.0	0.5	0.0	0.0	51.9	0.0	29.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	29.2	4.2	4.4	0.0	22.1	21.4	0.1	0.0	0.0	10.4	0.0	15.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	120.2	12.0	11.9	0.0	146.1	147.0	34.0	0.0	0.0	97.2	0.0	70.4
LnGrp LOS	F	B	B	A	F	F	C	A	A	F	A	E
Approach Vol, veh/h	1335			903			3			659		
Approach Delay, s/veh	65.6			146.5			34.0			80.1		
Approach LOS	E			F			C			F		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	35.0		40.0	28.0	35.0		0.0	13.2				
Green Ext Time (p_c), s	0.0		0.0	0.0	0.0		0.0	4.7				
Intersection Summary												
HCM 6th Ctrl Delay	94.0											
HCM 6th LOS	F											

OPENING YEAR (2026) WITH PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	75	534	77	83	395
Future Volume (vph)	67	75	534	77	83	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	79	88	628	91	98	465
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	88	628	91	98	465
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	53.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 4.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	75	534	77	83	395
Future Vol, veh/h	67	75	534	77	83	395
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	79	88	628	91	98	465

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1289	628	0
Stage 1	628	-	-
Stage 2	661	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	182	487	-
Stage 1	536	-	-
Stage 2	517	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	162	487	-
Mov Cap-2 Maneuver	162	-	-
Stage 1	477	-	-
Stage 2	517	-	-

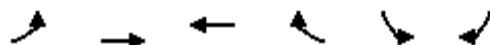
Approach	WB	NB	SB
HCM Control Delay, s	29.4	0	1.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 162 487	892	-
HCM Lane V/C Ratio	-	- 0.487 0.181	0.109	-
HCM Control Delay (s)	-	- 46.6 14	9.5	-
HCM Lane LOS	-	- E B	A	-
HCM 95th %tile Q(veh)	-	- 2.3 0.7	0.4	-

Lanes, Volumes, Timings

2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	59	73	40	0	0	80
Future Volume (vph)	59	73	40	0	0	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.978				
Satd. Flow (prot)	0	1858	1900	0	1644	0
Flt Permitted		0.978				
Satd. Flow (perm)	0	1858	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	79	43	0	0	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	143	43	0	87	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	59	73	40	0	0	80
Future Vol, veh/h	59	73	40	0	0	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	64	79	43	0	0	87

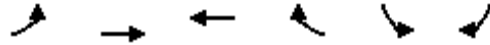
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	43	0	0 250 43
Stage 1	-	-	- 43 -
Stage 2	-	-	- 207 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1579	-	- 743 1033
Stage 1	-	-	- 985 -
Stage 2	-	-	- 832 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1579	-	- 712 1033
Mov Cap-2 Maneuver	-	-	- 691 -
Stage 1	-	-	- 944 -
Stage 2	-	-	- 832 -

Approach	EB	WB	SB
HCM Control Delay, s	3.3	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1033
HCM Lane V/C Ratio	0.041	-	-	-	0.084
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lanes, Volumes, Timings
3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	67	40	0	0	10
Future Volume (vph)	19	67	40	0	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	73	43	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	73	43	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	67	40	0	0	10
Future Vol, veh/h	19	67	40	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	21	73	43	0	0	11

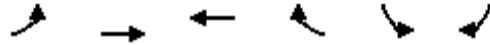
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	43	0	0 158 43
Stage 1	-	-	- 43 -
Stage 2	-	-	- 115 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1579	-	- 838 1033
Stage 1	-	-	- 985 -
Stage 2	-	-	- 915 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1579	-	- 827 1033
Mov Cap-2 Maneuver	-	-	- 797 -
Stage 1	-	-	- 972 -
Stage 2	-	-	- 915 -

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1033
HCM Lane V/C Ratio	0.013	-	-	-	0.011
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings
4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	60	40	0	0	12
Future Volume (vph)	23	60	40	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	65	43	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	25	65	43	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.9%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	60	40	0	0	12
Future Vol, veh/h	23	60	40	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	25	65	43	0	0	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	43	0	0 158 43
Stage 1	-	-	- 43 -
Stage 2	-	-	- 115 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1579	-	- 838 1033
Stage 1	-	-	- 985 -
Stage 2	-	-	- 915 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1579	-	- 825 1033
Mov Cap-2 Maneuver	-	-	- 794 -
Stage 1	-	-	- 969 -
Stage 2	-	-	- 915 -

Approach	EB	WB	SB
HCM Control Delay, s	2	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	1033
HCM Lane V/C Ratio	0.016	-	-	-	0.013
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	369	628	0	0	484	316	9	1	2	156	0	387
Future Volume (vph)	369	628	0	0	484	316	9	1	2	156	0	387
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.941			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3397	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.844			0.750	
Satd. Flow (perm)	1805	3610	0	1900	3397	0	0	1567	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					126			2				403
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	384	654	0	0	504	329	9	1	2	163	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	384	654	0	0	833	0	0	12	0	0	163	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 1 With Project (EAGCp1) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	24.1	59.0			27.9			27.0			27.0	27.0
Actuated g/C Ratio	0.24	0.59			0.28			0.27			0.27	0.27
v/c Ratio	0.88	0.31			0.80			0.03			0.42	0.55
Control Delay	58.1	10.7			36.8			24.7			37.8	11.8
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	58.1	10.7			36.8			24.7			37.8	11.8
LOS	E	B			D			C			D	B
Approach Delay		28.3			36.8			24.7			19.3	
Approach LOS		C			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 29.1

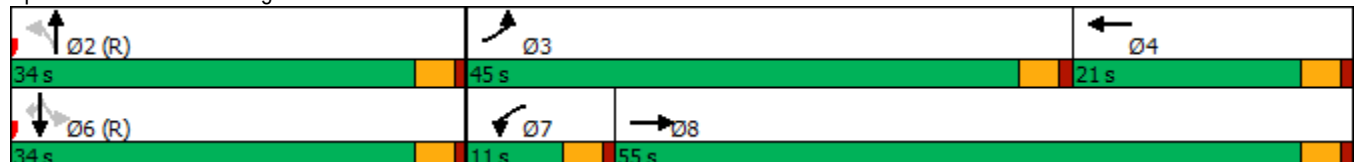
Intersection LOS: C

Intersection Capacity Utilization 72.0%

ICU Level of Service C

Analysis Period (min) 15

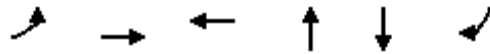
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	384	654	833	12	163	403
v/c Ratio	0.88	0.31	0.80	0.03	0.42	0.55
Control Delay	58.1	10.7	36.8	24.7	37.8	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.1	10.7	36.8	24.7	37.8	11.8
Queue Length 50th (ft)	236	102	223	5	90	11
Queue Length 95th (ft)	312	134	#403	19	156	119
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	1039	424	384	730
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.31	0.80	0.03	0.42	0.55

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	628	0	0	484	316	9	1	2	156	0	387
Future Volume (veh/h)	369	628	0	0	484	316	9	1	2	156	0	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	384	654	0	0	504	329	9	1	2	162	0	403
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	400	1733	0	2	396	258	318	39	59	623	0	612
Arrive On Green	0.22	0.48	0.00	0.00	0.19	0.19	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2095	1364	670	101	154	1450	0	1610
Grp Volume(v), veh/h	384	654	0	0	434	399	12	0	0	162	0	403
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1654	926	0	0	1450	0	1610
Q Serve(g_s), s	21.0	11.5	0.0	0.0	18.9	18.9	0.1	0.0	0.0	0.0	0.0	20.7
Cycle Q Clear(g_c), s	21.0	11.5	0.0	0.0	18.9	18.9	7.5	0.0	0.0	7.5	0.0	20.7
Prop In Lane	1.00		0.00	1.00		0.82	0.75		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	400	1733	0	2	341	313	415	0	0	623	0	612
V/C Ratio(X)	0.96	0.38	0.00	0.00	1.27	1.27	0.03	0.00	0.00	0.26	0.00	0.66
Avail Cap(c_a), veh/h	688	1733	0	72	341	313	415	0	0	623	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.5	16.5	0.0	0.0	40.5	40.5	19.6	0.0	0.0	21.5	0.0	25.6
Incr Delay (d2), s/veh	17.2	0.6	0.0	0.0	143.2	146.2	0.1	0.0	0.0	1.0	0.0	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	4.8	0.0	0.0	21.8	20.3	0.2	0.0	0.0	2.8	0.0	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	17.1	0.0	0.0	183.7	186.7	19.7	0.0	0.0	22.5	0.0	31.1
LnGrp LOS	E	B	A	A	F	F	B	A	A	C	A	C
Approach Vol, veh/h	1038			833			12			565		
Approach Delay, s/veh	31.4			185.2			19.7			28.7		
Approach LOS	C			F			B			C		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	45.0		29.1	25.9	45.0		0.0	55.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	30.0		41.0	17.0	30.0		7.0	51.0				
Max Q Clear Time (g_c+I1), s	10.5		24.0	21.9	23.7		0.0	14.5				
Green Ext Time (p_c), s	0.0		1.1	0.0	1.4		0.0	5.1				
Intersection Summary												
HCM 6th Ctrl Delay	83.0											
HCM 6th LOS	F											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	67	737	87	85	477
Future Volume (vph)	113	67	737	87	85	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	119	71	776	92	89	502
Shared Lane Traffic (%)						
Lane Group Flow (vph)	119	71	776	92	89	502
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	67.3%			ICU Level of Service C		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 10.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	113	67	737	87	85	477
Future Vol, veh/h	113	67	737	87	85	477
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	119	71	776	92	89	502

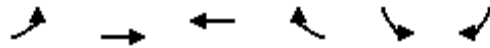
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1456	776	0
Stage 1	776	-	-
Stage 2	680	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	144	401	-
Stage 1	457	-	-
Stage 2	507	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	128	401	-
Mov Cap-2 Maneuver	128	-	-
Stage 1	405	-	-
Stage 2	507	-	-

Approach	WB	NB	SB
HCM Control Delay, s	85.5	0	1.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 128 401	785	-
HCM Lane V/C Ratio	-	- 0.929 0.176	0.114	-
HCM Control Delay (s)	-	- 126.8 15.9	10.2	-
HCM Lane LOS	-	- F C	B	-
HCM 95th %tile Q(veh)	-	- 6.1 0.6	0.4	-

Lanes, Volumes, Timings
2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	104	33	95	0	0	57
Future Volume (vph)	104	33	95	0	0	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.963				
Satd. Flow (prot)	0	1830	1900	0	1644	0
Flt Permitted		0.963				
Satd. Flow (perm)	0	1830	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	36	103	0	0	62
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	149	103	0	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	29.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	104	33	95	0	0	57
Future Vol, veh/h	104	33	95	0	0	57
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	113	36	103	0	0	62

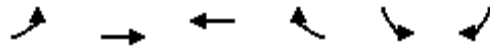
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	103	0	0 365 103
Stage 1	-	-	- 103 -
Stage 2	-	-	- 262 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1502	-	- 639 957
Stage 1	-	-	- 926 -
Stage 2	-	-	- 786 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1502	-	- 590 957
Mov Cap-2 Maneuver	-	-	- 596 -
Stage 1	-	-	- 855 -
Stage 2	-	-	- 786 -

Approach	EB	WB	SB
HCM Control Delay, s	5.8	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1502	-	-	-	957
HCM Lane V/C Ratio	0.075	-	-	-	0.065
HCM Control Delay (s)	7.6	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lanes, Volumes, Timings
3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	16	33	86	0	0	22
Future Volume (vph)	16	33	86	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	36	93	0	0	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	17	36	93	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.6%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	33	86	0	0	22
Future Vol, veh/h	16	33	86	0	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	17	36	93	0	0	24

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	93	0	0 163 93
Stage 1	-	-	- - 93 -
Stage 2	-	-	- - 70 -
Critical Hdwy	4.1	-	- - 6.4 6.2
Critical Hdwy Stg 1	-	-	- - 5.4 -
Critical Hdwy Stg 2	-	-	- - 5.4 -
Follow-up Hdwy	2.2	-	- - 3.5 3.3
Pot Cap-1 Maneuver	1514	-	- - 832 970
Stage 1	-	-	- - 936 -
Stage 2	-	-	- - 958 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1514	-	- - 823 970
Mov Cap-2 Maneuver	-	-	- - 802 -
Stage 1	-	-	- - 926 -
Stage 2	-	-	- - 958 -

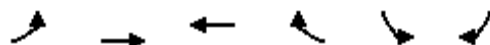
Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1514	-	-	-	970
HCM Lane V/C Ratio	0.011	-	-	-	0.025
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	33	76	0	0	25
Future Volume (vph)	19	33	76	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	21	36	83	0	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	21	36	83	0	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	19	33	76	0	0	25
Future Vol, veh/h	19	33	76	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	21	36	83	0	0	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	83	0	0 161 83
Stage 1	-	-	- 83 -
Stage 2	-	-	- 78 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1527	-	- 835 982
Stage 1	-	-	- 945 -
Stage 2	-	-	- 950 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1527	-	- 823 982
Mov Cap-2 Maneuver	-	-	- 800 -
Stage 1	-	-	- 932 -
Stage 2	-	-	- 950 -

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1527	-	-	-	982
HCM Lane V/C Ratio	0.014	-	-	-	0.028
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	611	603	3	0	609	211	1	0	2	219	0	387
Future Volume (vph)	611	603	3	0	609	211	1	0	2	219	0	387
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.961			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3469	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.953			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3469	0	0	1648	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			38			85				430
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	679	670	3	0	677	234	1	0	2	243	0	430
Shared Lane Traffic (%)												
Lane Group Flow (vph)	679	673	0	0	911	0	0	3	0	0	243	430
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 1 With Project (EAGCp1) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effct Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.17	0.31			1.16			0.01			0.61	0.57
Control Delay	130.2	11.8			126.3			0.0			51.1	12.6
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	130.2	11.8			126.3			0.0			51.1	12.6
LOS	F	B			F			A			D	B
Approach Delay		71.3			126.3						26.5	
Approach LOS		E			F						C	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 78.0

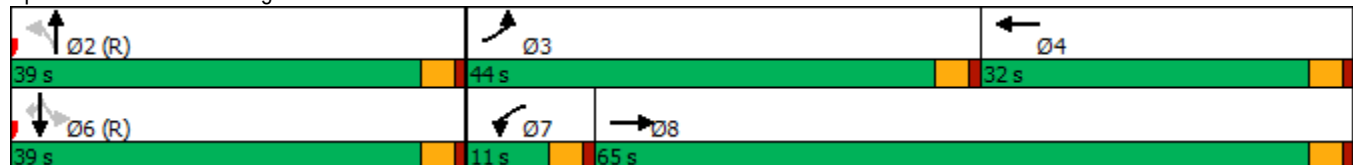
Intersection LOS: E

Intersection Capacity Utilization 93.7%

ICU Level of Service F

Analysis Period (min) 15

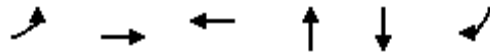
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	679	673	911	3	243	430
v/c Ratio	1.17	0.31	1.16	0.01	0.61	0.57
Control Delay	130.2	11.8	126.3	0.0	51.1	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.2	11.8	126.3	0.0	51.1	12.6
Queue Length 50th (ft)	~599	120	~410	0	169	0
Queue Length 95th (ft)	#828	155	#542	0	264	156
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	783	519	399	759
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.31	1.16	0.01	0.61	0.57

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	611	603	3	0	609	211	1	0	2	219	0	387
Future Volume (veh/h)	611	603	3	0	609	211	1	0	2	219	0	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	679	670	3	0	677	234	1	0	2	243	0	430
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2211	10	2	572	198	42	20	39	244	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3686	17	1810	2632	909	0	71	141	651	0	1610
Grp Volume(v), veh/h	679	328	345	0	464	447	3	0	0	243	0	430
Grp Sat Flow(s),veh/h/ln	1810	1805	1897	1810	1805	1736	212	0	0	651	0	1610
Q Serve(g_s), s	37.0	10.2	10.2	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	30.2
Cycle Q Clear(g_c), s	37.0	10.2	10.2	0.0	25.0	25.0	32.0	0.0	0.0	32.0	0.0	30.2
Prop In Lane	1.00		0.01	1.00		0.52	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	377	101	0	0	244	0	448
V/C Ratio(X)	1.17	0.30	0.30	0.00	1.18	1.18	0.03	0.00	0.00	1.00	0.00	0.96
Avail Cap(c_a), veh/h	582	1083	1138	63	392	377	101	0	0	244	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.2	11.2	0.0	45.0	45.0	33.4	0.0	0.0	45.6	0.0	40.9
Incr Delay (d2), s/veh	92.4	0.7	0.7	0.0	105.6	106.5	0.5	0.0	0.0	56.9	0.0	33.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	31.0	4.2	4.4	0.0	22.6	21.8	0.1	0.0	0.0	10.9	0.0	16.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	131.4	12.0	11.9	0.0	150.6	151.5	34.0	0.0	0.0	102.4	0.0	74.4
LnGrp LOS	F	B	B	A	F	F	C	A	A	F	A	E
Approach Vol, veh/h	1352			911			3			673		
Approach Delay, s/veh	71.9			151.0			34.0			84.5		
Approach LOS	E			F			C			F		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	35.0		40.0	28.0	35.0		0.0	13.2				
Green Ext Time (p_c), s	0.0		0.0	0.0	0.0		0.0	4.7				
Intersection Summary												
HCM 6th Ctrl Delay	99.3											
HCM 6th LOS	F											

OPENING YEAR (2031) WITHOUT PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	12	636	56	9	509
Future Volume (vph)	32	12	636	56	9	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	38	14	748	66	11	599
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	14	748	66	11	599
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	48.5%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	32	12	636	56	9	509
Future Vol, veh/h	32	12	636	56	9	509
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	38	14	748	66	11	599

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1369	748	0
Stage 1	748	-	-
Stage 2	621	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	163	416	-
Stage 1	471	-	-
Stage 2	540	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	161	416	-
Mov Cap-2 Maneuver	161	-	-
Stage 1	465	-	-
Stage 2	540	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.6	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 161 416	822	-
HCM Lane V/C Ratio	-	- 0.234 0.034	0.013	-
HCM Control Delay (s)	-	- 34.1 14	9.4	-
HCM Lane LOS	-	- D B	A	-
HCM 95th %tile Q(veh)	-	- 0.9 0.1	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	396	694	0	0	534	338	10	1	2	161	0	405
Future Volume (vph)	396	694	0	0	534	338	10	1	2	161	0	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.942			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3401	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.834			0.749	
Satd. Flow (perm)	1805	3610	0	1900	3401	0	0	1551	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					117			2				422
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	413	723	0	0	556	352	10	1	2	168	0	422
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	723	0	0	908	0	0	13	0	0	168	422
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 2 (EAGC2) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	25.7	59.0			26.3			27.0			27.0	27.0
Actuated g/C Ratio	0.26	0.59			0.26			0.27			0.27	0.27
v/c Ratio	0.89	0.34			0.93			0.03			0.44	0.57
Control Delay	57.1	11.1			49.1			24.6			38.4	12.8
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	57.1	11.1			49.1			24.6			38.4	12.8
LOS	E	B			D			C			D	B
Approach Delay		27.8			49.1			24.6			20.1	
Approach LOS		C			D			C			C	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 33.4

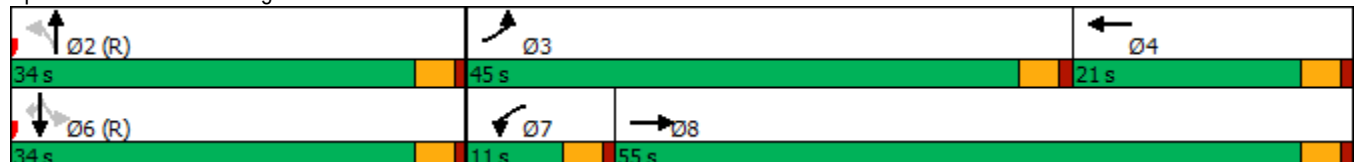
Intersection LOS: C

Intersection Capacity Utilization 75.7%

ICU Level of Service D

Analysis Period (min) 15

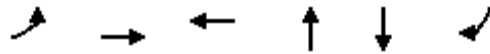
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	413	723	908	13	168	422
v/c Ratio	0.89	0.34	0.93	0.03	0.44	0.57
Control Delay	57.1	11.1	49.1	24.6	38.4	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	11.1	49.1	24.6	38.4	12.8
Queue Length 50th (ft)	254	115	264	5	93	24
Queue Length 95th (ft)	332	151	#484	20	161	134
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	981	420	384	744
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.34	0.93	0.03	0.44	0.57

Intersection Summary

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

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	396	694	0	0	534	338	10	1	2	161	0	405
Future Volume (veh/h)	396	694	0	0	534	338	10	1	2	161	0	405
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	412	723	0	0	556	352	10	1	2	168	0	422
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	428	1733	0	2	368	233	317	35	52	625	0	612
Arrive On Green	0.24	0.48	0.00	0.00	0.17	0.17	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2121	1342	667	91	138	1455	0	1610
Grp Volume(v), veh/h	412	723	0	0	473	435	13	0	0	168	0	422
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1658	896	0	0	1455	0	1610
Q Serve(g_s), s	22.5	13.0	0.0	0.0	17.3	17.3	0.1	0.0	0.0	0.0	0.0	22.0
Cycle Q Clear(g_c), s	22.5	13.0	0.0	0.0	17.3	17.3	7.8	0.0	0.0	7.7	0.0	22.0
Prop In Lane	1.00		0.00	1.00		0.81	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	428	1733	0	2	313	287	404	0	0	625	0	612
V/C Ratio(X)	0.96	0.42	0.00	0.00	1.51	1.51	0.03	0.00	0.00	0.27	0.00	0.69
Avail Cap(c_a), veh/h	688	1733	0	72	313	287	404	0	0	625	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.7	16.9	0.0	0.0	41.3	41.3	19.6	0.0	0.0	21.6	0.0	26.0
Incr Delay (d2), s/veh	18.8	0.7	0.0	0.0	246.3	248.0	0.1	0.0	0.0	1.1	0.0	6.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	5.4	0.0	0.0	29.0	26.8	0.2	0.0	0.0	2.9	0.0	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	17.6	0.0	0.0	287.7	289.4	19.8	0.0	0.0	22.7	0.0	32.3
LnGrp LOS	E	B	A	A	F	F	B	A	A	C	A	C
Approach Vol, veh/h	1135			908			13			590		
Approach Delay, s/veh	31.8			288.5			19.8			29.6		
Approach LOS	C			F			B			C		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	45.0			30.7			24.3			45.0		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	30.0			41.0			17.0			30.0		
Max Q Clear Time (g_c+I1), s	10.8			25.5			20.3			25.0		
Green Ext Time (p_c), s	0.0			1.2			0.0			1.2		
Intersection Summary												
HCM 6th Ctrl Delay	119.3											
HCM 6th LOS	F											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	26	848	27	10	588
Future Volume (vph)	57	26	848	27	10	588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	60	27	893	28	11	619
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	27	893	28	11	619
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	59.6%			ICU Level of Service B		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	57	26	848	27	10	588
Future Vol, veh/h	57	26	848	27	10	588
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	60	27	893	28	11	619

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1534	893	0
Stage 1	893	-	-
Stage 2	641	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	129	343	-
Stage 1	403	-	-
Stage 2	528	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	127	343	-
Mov Cap-2 Maneuver	127	-	-
Stage 1	397	-	-
Stage 2	528	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.9	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 127 343	750	-
HCM Lane V/C Ratio	-	- 0.472 0.08	0.014	-
HCM Control Delay (s)	-	- 56.5 16.4	9.9	-
HCM Lane LOS	-	- F C	A	-
HCM 95th %tile Q(veh)	-	- 2.1 0.3	0	-

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	653	666	4	0	673	223	1	0	2	229	0	413
Future Volume (vph)	653	666	4	0	673	223	1	0	2	229	0	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.963			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3476	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.952			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3476	0	0	1646	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			36			85				459
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	726	740	4	0	748	248	1	0	2	254	0	459
Shared Lane Traffic (%)												
Lane Group Flow (vph)	726	744	0	0	996	0	0	3	0	0	254	459
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua Mansa/Wilson) Project Opening Year 2 (EAGC2) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.25	0.34			1.27			0.01			0.64	0.59
Control Delay	161.6	12.1			169.0			0.0			53.8	14.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	161.6	12.1			169.0			0.0			53.8	14.2
LOS	F	B			F			A			D	B
Approach Delay		85.9			169.0						28.3	
Approach LOS		F			F						C	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 82 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.27

Intersection Signal Delay: 98.9

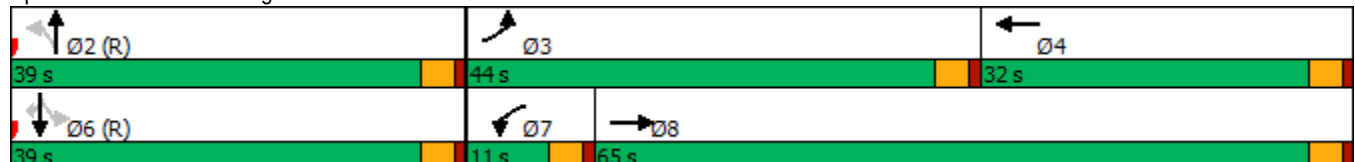
Intersection LOS: F

Intersection Capacity Utilization 98.8%

ICU Level of Service F

Analysis Period (min) 15

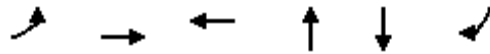
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	726	744	996	3	254	459
v/c Ratio	1.25	0.34	1.27	0.01	0.64	0.59
Control Delay	161.6	12.1	169.0	0.0	53.8	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	161.6	12.1	169.0	0.0	53.8	14.2
Queue Length 50th (ft)	~672	136	~481	0	183	15
Queue Length 95th (ft)	#905	174	#614	0	278	180
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	783	519	399	780
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.25	0.34	1.27	0.01	0.64	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	653	666	4	0	673	223	1	0	2	229	0	413
Future Volume (veh/h)	653	666	4	0	673	223	1	0	2	229	0	413
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	726	740	4	0	748	248	1	0	2	254	0	459
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2209	12	2	579	192	42	20	39	244	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3682	20	1810	2663	883	0	71	141	651	0	1610
Grp Volume(v), veh/h	726	363	381	0	507	489	3	0	0	254	0	459
Grp Sat Flow(s),veh/h/ln	1810	1805	1896	1810	1805	1741	212	0	0	651	0	1610
Q Serve(g_s), s	37.0	11.6	11.6	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	32.0
Cycle Q Clear(g_c), s	37.0	11.6	11.6	0.0	25.0	25.0	32.0	0.0	0.0	32.0	0.0	32.0
Prop In Lane	1.00		0.01	1.00		0.51	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	378	101	0	0	244	0	448
V/C Ratio(X)	1.25	0.33	0.34	0.00	1.29	1.29	0.03	0.00	0.00	1.04	0.00	1.02
Avail Cap(c_a), veh/h	582	1083	1138	63	392	378	101	0	0	244	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.5	11.5	0.0	45.0	45.0	33.4	0.0	0.0	45.6	0.0	41.5
Incr Delay (d2), s/veh	125.0	0.8	0.8	0.0	149.3	149.9	0.5	0.0	0.0	69.0	0.0	48.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	36.3	4.7	5.0	0.0	27.4	26.4	0.1	0.0	0.0	11.8	0.0	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	164.0	12.3	12.3	0.0	194.3	194.9	34.0	0.0	0.0	114.7	0.0	90.4
LnGrp LOS	F	B	B	A	F	F	C	A	A	F	A	F
Approach Vol, veh/h	1470			996			3			713		
Approach Delay, s/veh	87.3			194.6			34.0			99.0		
Approach LOS	F			F			C			F		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	35.0		40.0	28.0	35.0		0.0	14.6				
Green Ext Time (p_c), s	0.0		0.0	0.0	0.0		0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay	123.4											
HCM 6th LOS	F											

OPENING YEAR (2031) WITH PROJECT

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	37	565	139	31	456
Future Volume (vph)	113	37	565	139	31	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	133	44	665	164	36	536
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	44	665	164	36	536
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	47.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

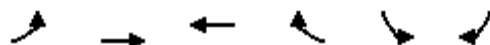
11/22/2021

Intersection						
Int Delay, s/veh	6.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	113	37	565	139	31	456
Future Vol, veh/h	113	37	565	139	31	456
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	133	44	665	164	36	536
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1273	665	0	0	829	0
Stage 1	665	-	-	-	-	-
Stage 2	608	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	187	464	-	-	811	-
Stage 1	515	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	179	464	-	-	811	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	492	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	54.3	0	0.6			
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 179 464	811	-		
HCM Lane V/C Ratio	-	- 0.743 0.094	0.045	-		
HCM Control Delay (s)	-	- 67.6 13.6	9.6	-		
HCM Lane LOS	-	- F B	A	-		
HCM 95th %tile Q(veh)	-	- 4.7 0.3	0.1	-		

Lanes, Volumes, Timings

2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	59	82	44	0	0	84
Future Volume (vph)	59	82	44	0	0	84
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.980				
Satd. Flow (prot)	0	1862	1900	0	1644	0
Flt Permitted		0.980				
Satd. Flow (perm)	0	1862	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	89	48	0	0	91
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	153	48	0	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	31.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Vol, veh/h	59	82	44	0	0	84
Future Vol, veh/h	59	82	44	0	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	64	89	48	0	0	91

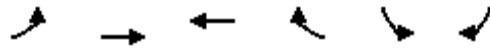
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	48	0	0 265 48
Stage 1	-	-	- 48 -
Stage 2	-	-	- 217 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1572	-	- 728 1027
Stage 1	-	-	- 980 -
Stage 2	-	-	- 824 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1572	-	- 697 1027
Mov Cap-2 Maneuver	-	-	- 682 -
Stage 1	-	-	- 938 -
Stage 2	-	-	- 824 -

Approach	EB	WB	SB
HCM Control Delay, s	3.1	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	1027
HCM Lane V/C Ratio	0.041	-	-	-	0.089
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lanes, Volumes, Timings
3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	74	44	0	0	10
Future Volume (vph)	21	74	44	0	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	80	48	0	0	11
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	80	48	0	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	74	44	0	0	10
Future Vol, veh/h	21	74	44	0	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	80	48	0	0	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	48	0	0 174 48
Stage 1	-	-	- 48 -
Stage 2	-	-	- 126 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1572	-	- 821 1027
Stage 1	-	-	- 980 -
Stage 2	-	-	- 905 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1572	-	- 809 1027
Mov Cap-2 Maneuver	-	-	- 784 -
Stage 1	-	-	- 965 -
Stage 2	-	-	- 905 -

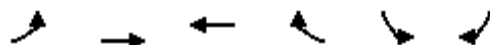
Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	1027
HCM Lane V/C Ratio	0.015	-	-	-	0.011
HCM Control Delay (s)	7.3	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	65	44	0	0	12
Future Volume (vph)	25	65	44	0	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	71	48	0	0	13
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	71	48	0	13	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.1%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	65	44	0	0	12
Future Vol, veh/h	25	65	44	0	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	27	71	48	0	0	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	48	0	0 173 48
Stage 1	-	-	- 48 -
Stage 2	-	-	- 125 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1572	-	- 822 1027
Stage 1	-	-	- 980 -
Stage 2	-	-	- 906 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1572	-	- 808 1027
Mov Cap-2 Maneuver	-	-	- 782 -
Stage 1	-	-	- 963 -
Stage 2	-	-	- 906 -

Approach	EB	WB	SB
HCM Control Delay, s	2	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1572	-	-	-	1027
HCM Lane V/C Ratio	0.017	-	-	-	0.013
HCM Control Delay (s)	7.3	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	404	694	0	0	534	342	10	1	2	171	0	423
Future Volume (vph)	404	694	0	0	534	342	10	1	2	171	0	423
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.941			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	1805	3610	0	1900	3397	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.831			0.749	
Satd. Flow (perm)	1805	3610	0	1900	3397	0	0	1546	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					120			2				441
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	421	723	0	0	556	356	10	1	2	178	0	441
Shared Lane Traffic (%)												
Lane Group Flow (vph)	421	723	0	0	912	0	0	13	0	0	178	441
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 2 With Project (EAGCp2) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	45.0	55.0		11.0	21.0		34.0	34.0		34.0	34.0	34.0
Total Split (%)	45.0%	55.0%		11.0%	21.0%		34.0%	34.0%		34.0%	34.0%	34.0%
Maximum Green (s)	41.0	51.0		7.0	17.0		30.0	30.0		30.0	30.0	30.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	26.1	59.0			25.9			27.0			27.0	27.0
Actuated g/C Ratio	0.26	0.59			0.26			0.27			0.27	0.27
v/c Ratio	0.89	0.34			0.94			0.03			0.46	0.58
Control Delay	56.9	11.1			51.7			24.6			37.5	10.1
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	56.9	11.1			51.7			24.6			37.5	10.1
LOS	E	B			D			C			D	B
Approach Delay		27.9			51.7			24.6			18.0	
Approach LOS		C			D			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 67 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 33.7

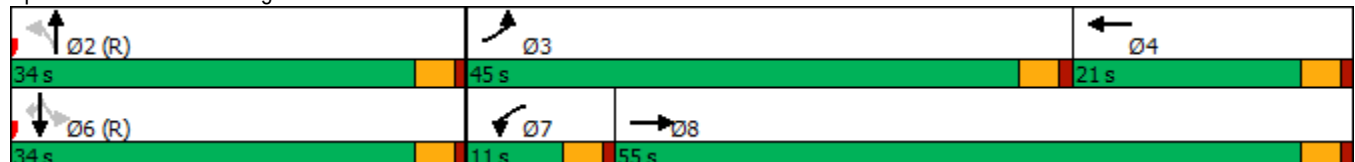
Intersection LOS: C

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

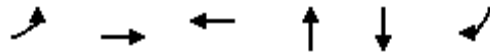
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	421	723	912	13	178	441
v/c Ratio	0.89	0.34	0.94	0.03	0.46	0.58
Control Delay	56.9	11.1	51.7	24.6	37.5	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	11.1	51.7	24.6	37.5	10.1
Queue Length 50th (ft)	258	115	266	5	96	0
Queue Length 95th (ft)	337	151	#491	20	175	142
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	685	2129	968	418	384	757
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.34	0.94	0.03	0.46	0.58

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	694	0	0	534	342	10	1	2	171	0	423
Future Volume (veh/h)	404	694	0	0	534	342	10	1	2	171	0	423
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	421	723	0	0	556	356	10	1	2	178	0	441
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	437	1733	0	2	355	227	308	34	51	624	0	612
Arrive On Green	0.24	0.48	0.00	0.00	0.17	0.17	0.38	0.38	0.38	0.38	0.00	0.38
Sat Flow, veh/h	1810	3705	0	1810	2111	1351	644	89	133	1453	0	1610
Grp Volume(v), veh/h	421	723	0	0	475	437	13	0	0	178	0	441
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1810	1805	1657	866	0	0	1453	0	1610
Q Serve(g_s), s	23.0	13.0	0.0	0.0	16.8	16.8	0.1	0.0	0.0	0.0	0.0	23.4
Cycle Q Clear(g_c), s	23.0	13.0	0.0	0.0	16.8	16.8	8.4	0.0	0.0	8.3	0.0	23.4
Prop In Lane	1.00		0.00	1.00		0.82	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	437	1733	0	2	304	279	393	0	0	624	0	612
V/C Ratio(X)	0.96	0.42	0.00	0.00	1.57	1.57	0.03	0.00	0.00	0.29	0.00	0.72
Avail Cap(c_a), veh/h	688	1733	0	72	304	279	393	0	0	624	0	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.5	16.9	0.0	0.0	41.6	41.6	19.7	0.0	0.0	21.8	0.0	26.5
Incr Delay (d2), s/veh	19.3	0.7	0.0	0.0	269.8	271.5	0.2	0.0	0.0	1.1	0.0	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	5.4	0.0	0.0	30.1	27.8	0.2	0.0	0.0	3.1	0.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.8	17.6	0.0	0.0	311.4	313.1	19.8	0.0	0.0	22.9	0.0	33.7
LnGrp LOS	E	B	A	A	F	F	B	A	A	C	A	C
Approach Vol, veh/h	1144		912				13			619		
Approach Delay, s/veh	32.0		312.2				19.8			30.6		
Approach LOS	C		F				B			C		
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	45.0		31.2		23.8		45.0		0.0		55.0	
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0		4.0			
Max Green Setting (Gmax), s	30.0		41.0		17.0		30.0		7.0		51.0	
Max Q Clear Time (g_c+I1), s	11.4		26.0		19.8		26.4		0.0		16.0	
Green Ext Time (p_c), s	0.0		1.2		0.0		1.0		0.0		5.8	
Intersection Summary												
HCM 6th Ctrl Delay	126.7											
HCM 6th LOS	F											

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	81	782	119	61	551
Future Volume (vph)	110	81	782	119	61	551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1805	1615	1900	1615	1805	1900
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	85	823	125	64	580
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	85	823	125	64	580
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	68.1%			ICU Level of Service C		
Analysis Period (min)	15					

HCM 6th TWSC
1: Agua Mansa Rd & Wilson St

11/22/2021

Intersection

Int Delay, s/veh 10.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	110	81	782	119	61	551
Future Vol, veh/h	110	81	782	119	61	551
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	160	0	-	0	150	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	116	85	823	125	64	580

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1531	823	0
Stage 1	823	-	-
Stage 2	708	-	-
Critical Hdwy	6.4	6.2	-
Critical Hdwy Stg 1	5.4	-	-
Critical Hdwy Stg 2	5.4	-	-
Follow-up Hdwy	3.5	3.3	-
Pot Cap-1 Maneuver	130	377	-
Stage 1	435	-	-
Stage 2	492	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	119	377	-
Mov Cap-2 Maneuver	119	-	-
Stage 1	397	-	-
Stage 2	492	-	-

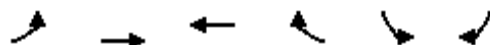
Approach	WB	NB	SB
HCM Control Delay, s	90.5	0	1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 119 377	732	-
HCM Lane V/C Ratio	-	- 0.973 0.226	0.088	-
HCM Control Delay (s)	-	- 144.4 17.3	10.4	-
HCM Lane LOS	-	- F C	B	-
HCM 95th %tile Q(veh)	-	- 6.4 0.9	0.3	-

Lanes, Volumes, Timings

2: Wilson St & Project West Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	
Traffic Volume (vph)	104	40	102	0	0	61
Future Volume (vph)	104	40	102	0	0	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	30			0	0	0
Storage Lanes	0			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected		0.965				
Satd. Flow (prot)	0	1834	1900	0	1644	0
Flt Permitted		0.965				
Satd. Flow (perm)	0	1834	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		905	180		480	
Travel Time (s)		24.7	4.9		13.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	43	111	0	0	66
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	156	111	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.0%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
2: Wilson St & Project West Dwy

11/22/2021

Intersection

Int Delay, s/veh 4.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↑	↑
Traffic Vol, veh/h	104	40	102	0	0	61
Future Vol, veh/h	104	40	102	0	0	61
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	113	43	111	0	0	66

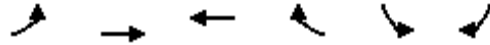
Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	111	0	380
Stage 1	-	-	111
Stage 2	-	-	269
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1492	-	626
Stage 1	-	-	919
Stage 2	-	-	781
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1492	-	577
Mov Cap-2 Maneuver	-	-	589
Stage 1	-	-	847
Stage 2	-	-	781

Approach	EB	WB	SB
HCM Control Delay, s	5.5	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1492	-	-	-	948
HCM Lane V/C Ratio	0.076	-	-	-	0.07
HCM Control Delay (s)	7.6	-	-	-	9.1
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lanes, Volumes, Timings
3: Wilson St & Project Central Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↰	↱	↰		↰	
Traffic Volume (vph)	18	38	93	0	0	22
Future Volume (vph)	18	38	93	0	0	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		25	25		25	
Link Distance (ft)		180	127		97	
Travel Time (s)		4.9	3.5		2.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	41	101	0	0	24
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	41	101	0	24	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.7%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
3: Wilson St & Project Central Dwy

11/22/2021

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	18	38	93	0	0	22
Future Vol, veh/h	18	38	93	0	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	20	41	101	0	0	24

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	101	0	0 182 101
Stage 1	-	-	- 101 -
Stage 2	-	-	- 81 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	1504	-	- 812 960
Stage 1	-	-	- 928 -
Stage 2	-	-	- 947 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1504	-	- 801 960
Mov Cap-2 Maneuver	-	-	- 786 -
Stage 1	-	-	- 916 -
Stage 2	-	-	- 947 -

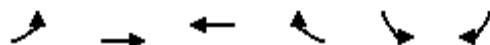
Approach	EB	WB	SB
HCM Control Delay, s	2.4	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1504	-	-	-	960
HCM Lane V/C Ratio	0.013	-	-	-	0.025
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings

4: Wilson St & Project East Dwy

11/22/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	36	83	0	0	25
Future Volume (vph)	21	36	83	0	0	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	0				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.865	
Flt Protected	0.950					
Satd. Flow (prot)	1805	1900	1900	0	1644	0
Flt Permitted	0.950					
Satd. Flow (perm)	1805	1900	1900	0	1644	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		127	697		529	
Travel Time (s)		2.9	15.8		12.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	39	90	0	0	27
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	39	90	0	27	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane		Yes	Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM 6th TWSC
4: Wilson St & Project East Dwy

11/22/2021

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	36	83	0	0	25
Future Vol, veh/h	21	36	83	0	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	50	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	23	39	90	0	0	27

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	90	0	175
Stage 1	-	-	90
Stage 2	-	-	85
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1518	-	819
Stage 1	-	-	939
Stage 2	-	-	943
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1518	-	807
Mov Cap-2 Maneuver	-	-	789
Stage 1	-	-	925
Stage 2	-	-	943

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1518	-	-	-	973
HCM Lane V/C Ratio	0.015	-	-	-	0.028
HCM Control Delay (s)	7.4	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	670	666	4	0	673	232	1	0	2	235	0	423
Future Volume (vph)	670	666	4	0	673	232	1	0	2	235	0	423
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.962			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	1805	3606	0	1900	3473	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.952			0.756	
Satd. Flow (perm)	1805	3606	0	1900	3473	0	0	1646	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			38			85				470
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	744	740	4	0	748	258	1	0	2	261	0	470
Shared Lane Traffic (%)												
Lane Group Flow (vph)	744	744	0	0	1006	0	0	3	0	0	261	470
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	3	8		7	4			2			6	
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 2 With Project (EAGCp2) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 9

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	33.0
Total Split (s)	44.0	65.0		11.0	32.0		39.0	39.0		39.0	39.0	39.0
Total Split (%)	38.3%	56.5%		9.6%	27.8%		33.9%	33.9%		33.9%	33.9%	33.9%
Maximum Green (s)	40.0	61.0		7.0	28.0		35.0	35.0		35.0	35.0	35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	C-Max
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	22.0
Pedestrian Calls (#/hr)		0					0	0		0	0	0
Act Effect Green (s)	37.0	69.0			25.0			32.0			32.0	32.0
Actuated g/C Ratio	0.32	0.60			0.22			0.28			0.28	0.28
v/c Ratio	1.28	0.34			1.28			0.01			0.65	0.60
Control Delay	174.1	12.1			173.4			0.0			48.9	11.0
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	174.1	12.1			173.4			0.0			48.9	11.0
LOS	F	B			F			A			D	B
Approach Delay		93.1			173.4						24.5	
Approach LOS		F			F						C	

Intersection Summary

Area Type: Other

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 81 (70%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.28

Intersection Signal Delay: 102.5

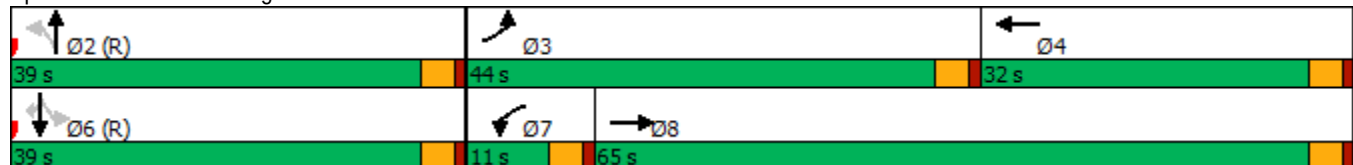
Intersection LOS: F

Intersection Capacity Utilization 100.3%

ICU Level of Service G

Analysis Period (min) 15

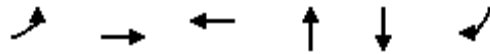
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	744	744	1006	3	261	470
v/c Ratio	1.28	0.34	1.28	0.01	0.65	0.60
Control Delay	174.1	12.1	173.4	0.0	48.9	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	174.1	12.1	173.4	0.0	48.9	11.0
Queue Length 50th (ft)	~700	136	~488	0	171	0
Queue Length 95th (ft)	#934	174	#622	0	290	170
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	580	2164	784	519	399	788
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.28	0.34	1.28	0.01	0.65	0.60

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	670	666	4	0	673	232	1	0	2	235	0	423
Future Volume (veh/h)	670	666	4	0	673	232	1	0	2	235	0	423
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	744	740	4	0	748	258	1	0	2	261	0	470
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	582	2209	12	2	572	197	42	20	39	244	0	448
Arrive On Green	0.32	0.60	0.60	0.00	0.22	0.22	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	1810	3682	20	1810	2633	908	0	71	141	651	0	1610
Grp Volume(v), veh/h	744	363	381	0	513	493	3	0	0	261	0	470
Grp Sat Flow(s),veh/h/ln	1810	1805	1896	1810	1805	1737	212	0	0	651	0	1610
Q Serve(g_s), s	37.0	11.6	11.6	0.0	25.0	25.0	0.0	0.0	0.0	0.0	0.0	32.0
Cycle Q Clear(g_c), s	37.0	11.6	11.6	0.0	25.0	25.0	32.0	0.0	0.0	32.0	0.0	32.0
Prop In Lane	1.00		0.01	1.00		0.52	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	582	1083	1138	2	392	378	101	0	0	244	0	448
V/C Ratio(X)	1.28	0.33	0.34	0.00	1.31	1.31	0.03	0.00	0.00	1.07	0.00	1.05
Avail Cap(c_a), veh/h	582	1083	1138	63	392	378	101	0	0	244	0	448
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.0	11.5	11.5	0.0	45.0	45.0	33.4	0.0	0.0	45.6	0.0	41.5
Incr Delay (d2), s/veh	138.0	0.8	0.8	0.0	155.3	156.0	0.5	0.0	0.0	77.6	0.0	55.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.4	4.7	5.0	0.0	28.0	27.0	0.1	0.0	0.0	12.3	0.0	19.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	177.0	12.3	12.3	0.0	200.3	201.0	34.0	0.0	0.0	123.3	0.0	97.4
LnGrp LOS	F	B	B	A	F	F	C	A	A	F	A	F
Approach Vol, veh/h	1488			1006			3			731		
Approach Delay, s/veh	94.6			200.7			34.0			106.7		
Approach LOS	F			F			C			F		
Timer - Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	39.0		44.0	32.0	39.0		0.0	76.0				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	35.0		40.0	28.0	35.0		7.0	61.0				
Max Q Clear Time (g_c+I1), s	35.0		40.0	28.0	35.0		0.0	14.6				
Green Ext Time (p_c), s	0.0		0.0	0.0	0.0		0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay	130.3											
HCM 6th LOS	F											

**OPENING BASE YEAR (2026) WITHOUT PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	11	474	47	4	407
Future Volume (vph)	29	11	474	47	4	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.454	
Satd. Flow (perm)	1805	1615	1900	1615	863	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		13		55		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	34	13	558	55	5	479
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	13	558	55	5	479
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	4.8	4.8	83.4	83.4	83.4	83.4
Actuated g/C Ratio	0.05	0.05	0.88	0.88	0.88	0.88
v/c Ratio	0.37	0.14	0.33	0.04	0.01	0.29
Control Delay	54.9	24.2	2.3	0.0	2.2	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	24.2	2.3	0.0	2.2	2.4
LOS	D	C	A	A	A	A
Approach Delay	46.4		2.1			2.4
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.37

Intersection Signal Delay: 4.0

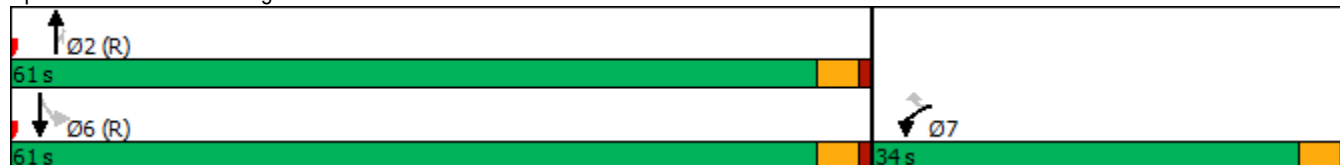
Intersection LOS: A

Intersection Capacity Utilization 42.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	13	558	55	5	479
v/c Ratio	0.37	0.14	0.33	0.04	0.01	0.29
Control Delay	54.9	24.2	2.3	0.0	2.2	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	24.2	2.3	0.0	2.2	2.4
Queue Length 50th (ft)	20	0	70	0	0	54
Queue Length 95th (ft)	47	18	67	m0	3	88
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	468	1668	1424	757	1668
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.33	0.04	0.01	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	11	474	47	4	407
Future Volume (veh/h)	29	11	474	47	4	407
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	13	558	55	5	479
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	38	33	1581	1339	702	1581
Arrive On Green	0.02	0.02	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1810	1610	1900	1610	822	1900
Grp Volume(v), veh/h	34	13	558	55	5	479
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	822	1900
Q Serve(g_s), s	1.8	0.8	6.6	0.6	0.1	5.4
Cycle Q Clear(g_c), s	1.8	0.8	6.6	0.6	6.8	5.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	38	33	1581	1339	702	1581
V/C Ratio(X)	0.90	0.39	0.35	0.04	0.01	0.30
Avail Cap(c_a), veh/h	514	458	1581	1339	702	1581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.85	0.85	0.97	0.97
Uniform Delay (d), s/veh	46.4	45.9	1.9	1.4	2.7	1.8
Incr Delay (d2), s/veh	46.7	7.2	0.5	0.0	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.4	0.9	0.1	0.0	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	93.1	53.1	2.4	1.4	2.7	2.3
LnGrp LOS	F	D	A	A	A	A
Approach Vol, veh/h	47		613			484
Approach Delay, s/veh	82.1		2.3			2.3
Approach LOS	F		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	86.0		9.0		86.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	9.6		4.8		9.8	
Green Ext Time (p_c), s	3.8		0.1		3.0	
Intersection Summary						
HCM 6th Ctrl Delay			5.6			
HCM 6th LOS			A			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	628	0	0	484	243	9	1	2	131	0	328
Future Volume (vph)	316	628	0	0	484	243	9	1	2	131	0	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.950			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3430	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.852			0.750	
Satd. Flow (perm)	3502	3610	0	1900	3430	0	0	1582	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					98			2				143
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	329	654	0	0	504	253	9	1	2	136	0	342
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	654	0	0	757	0	0	12	0	0	136	342
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua Mansa/Wilson) Project Opening Base Year 1 With Improvement (EAG1) AM Peak Hour Synchro 10 Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.53	0.31			0.64			0.03			0.35	0.37
Control Delay	38.8	10.8			26.4			23.2			30.0	7.5
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	38.8	10.8			26.4			23.2			30.0	7.5
LOS	D	B			C			C			C	A
Approach Delay		20.2			26.4			23.3			13.9	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 21.0

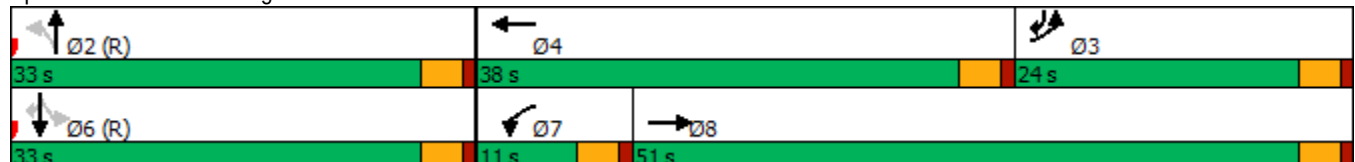
Intersection LOS: C

Intersection Capacity Utilization 64.8%

ICU Level of Service C

Analysis Period (min) 15

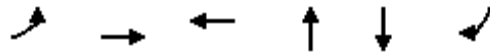
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	329	654	757	12	136	342
v/c Ratio	0.53	0.31	0.64	0.03	0.35	0.37
Control Delay	38.8	10.8	26.4	23.2	30.0	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.8	10.8	26.4	23.2	30.0	7.5
Queue Length 50th (ft)	93	99	176	4	68	71
Queue Length 95th (ft)	137	132	240	18	122	133
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1185	434	390	917
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.31	0.64	0.03	0.35	0.37
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	316	628	0	0	484	243	9	1	2	131	0	328
Future Volume (veh/h)	316	628	0	0	484	243	9	1	2	131	0	328
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	329	654	0	0	504	253	9	1	2	136	0	342
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	354	1808	0	2	760	380	321	39	59	591	0	729
Arrive On Green	0.10	0.50	0.00	0.00	0.33	0.33	0.35	0.35	0.35	0.35	0.00	0.35
Sat Flow, veh/h	3510	3705	0	1810	2330	1165	724	111	167	1464	0	1610
Grp Volume(v), veh/h	329	654	0	0	390	367	12	0	0	136	0	342
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1690	1002	0	0	1464	0	1610
Q Serve(g_s), s	8.8	10.5	0.0	0.0	17.6	17.8	0.1	0.0	0.0	0.0	0.0	4.4
Cycle Q Clear(g_c), s	8.8	10.5	0.0	0.0	17.6	17.8	5.8	0.0	0.0	5.7	0.0	4.4
Prop In Lane	1.00		0.00	1.00		0.69	0.75		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	354	1808	0	2	589	552	419	0	0	591	0	729
V/C Ratio(X)	0.93	0.36	0.00	0.00	0.66	0.67	0.03	0.00	0.00	0.23	0.00	0.47
Avail Cap(c_a), veh/h	628	1808	0	76	589	552	419	0	0	591	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.97	0.00	0.97
Uniform Delay (d), s/veh	42.4	14.5	0.0	0.0	27.5	27.5	20.2	0.0	0.0	21.8	0.0	18.1
Incr Delay (d2), s/veh	12.3	0.6	0.0	0.0	5.8	6.2	0.1	0.0	0.0	0.9	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	4.3	0.0	0.0	8.3	7.9	0.2	0.0	0.0	2.3	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.7	15.0	0.0	0.0	33.3	33.8	20.3	0.0	0.0	22.7	0.0	20.2
LnGrp LOS	D	B	A	A	C	C	C	A	A	C	A	C
Approach Vol, veh/h	983		757				12		478			
Approach Delay, s/veh	28.3		33.5				20.3		20.9			
Approach LOS	C		C				C		C			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	40.4		16.6		38.0		40.4		0.0		54.6	
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0		4.0			
Max Green Setting (Gmax), s	29.0		20.0		34.0		29.0		7.0		47.0	
Max Q Clear Time (g_c+I1), s	8.8		11.8		20.8		8.7		0.0		13.5	
Green Ext Time (p_c), s	0.0		0.7		4.1		1.9		0.0		5.1	
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			C									
Notes												

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	49	21	709	23	8	429
Future Volume (vph)	49	21	709	23	8	429
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.356	
Satd. Flow (perm)	1805	1615	1900	1615	676	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		22		24		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	52	22	746	24	8	452
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	22	746	24	8	452
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	5.7	5.7	88.9	88.9	88.9	88.9
Actuated g/C Ratio	0.05	0.05	0.85	0.85	0.85	0.85
v/c Ratio	0.53	0.20	0.46	0.02	0.01	0.28
Control Delay	66.8	22.3	5.4	0.0	2.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	22.3	5.4	0.0	2.4	2.8
LOS	E	C	A	A	A	A
Approach Delay	53.6		5.2			2.8
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 7.1

Intersection LOS: A

Intersection Capacity Utilization 54.8%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	52	22	746	24	8	452
v/c Ratio	0.53	0.20	0.46	0.02	0.01	0.28
Control Delay	66.8	22.3	5.4	0.0	2.4	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	22.3	5.4	0.0	2.4	2.8
Queue Length 50th (ft)	35	0	185	0	1	55
Queue Length 95th (ft)	73	24	192	m0	4	98
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	416	1607	1370	572	1607
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.05	0.46	0.02	0.01	0.28

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	49	21	709	23	8	429
Future Volume (veh/h)	49	21	709	23	8	429
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	52	22	746	24	8	452
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	55	49	1589	1347	587	1589
Arrive On Green	0.03	0.03	0.84	0.84	0.84	0.84
Sat Flow, veh/h	1810	1610	1900	1610	710	1900
Grp Volume(v), veh/h	52	22	746	24	8	452
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	710	1900
Q Serve(g_s), s	3.0	1.4	11.1	0.3	0.3	5.4
Cycle Q Clear(g_c), s	3.0	1.4	11.1	0.3	11.4	5.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	55	49	1589	1347	587	1589
V/C Ratio(X)	0.95	0.45	0.47	0.02	0.01	0.28
Avail Cap(c_a), veh/h	448	399	1589	1347	587	1589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.65	0.65	0.95	0.95
Uniform Delay (d), s/veh	50.8	50.0	2.3	1.4	3.9	1.8
Incr Delay (d2), s/veh	43.9	6.3	0.6	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.7	1.8	0.0	0.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	94.8	56.4	3.0	1.4	3.9	2.3
LnGrp LOS	F	E	A	A	A	A
Approach Vol, veh/h	74		770			460
Approach Delay, s/veh	83.3		2.9			2.3
Approach LOS	F		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	94.8		10.2		94.8	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	14.1		6.0		14.4	
Green Ext Time (p_c), s	5.7		0.2		2.8	
Intersection Summary						
HCM 6th Ctrl Delay			7.3			
HCM 6th LOS			A			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	549	603	3	0	609	184	1	0	2	148	0	328
Future Volume (vph)	549	603	3	0	609	184	1	0	2	148	0	328
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.965			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3484	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.956			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3484	0	0	1653	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			39			94				56
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	610	670	3	0	677	204	1	0	2	164	0	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	610	673	0	0	881	0	0	3	0	0	164	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 1 With Improvement (EAG1) PM Peak Hour Synchro 10 Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.70	0.30			0.81			0.01			0.46	0.39
Control Delay	41.1	9.8			39.1			0.0			38.4	11.3
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	41.1	9.8			39.1			0.0			38.4	11.3
LOS	D	A			D			A			D	B
Approach Delay		24.7			39.1						19.7	
Approach LOS		C			D						B	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 28.4

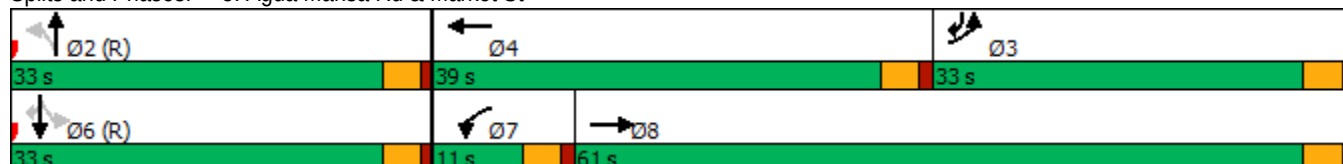
Intersection LOS: C

Intersection Capacity Utilization 70.7%

ICU Level of Service C

Analysis Period (min) 15

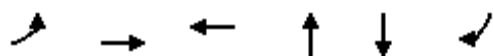
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	610	673	881	3	164	364
v/c Ratio	0.70	0.30	0.81	0.01	0.46	0.39
Control Delay	41.1	9.8	39.1	0.0	38.4	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.1	9.8	39.1	0.0	38.4	11.3
Queue Length 50th (ft)	192	102	275	0	97	125
Queue Length 95th (ft)	255	134	353	0	164	88
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1088	480	355	932
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.30	0.81	0.01	0.46	0.39
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	549	603	3	0	609	184	1	0	2	148	0	328
Future Volume (veh/h)	549	603	3	0	609	184	1	0	2	148	0	328
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	610	670	3	0	677	204	1	0	2	164	0	364
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	653	2054	9	2	833	251	90	22	132	357	0	797
Arrive On Green	0.19	0.56	0.56	0.00	0.30	0.30	0.31	0.00	0.31	0.31	0.00	0.31
Sat Flow, veh/h	3510	3686	17	1810	2733	823	144	70	428	931	0	1610
Grp Volume(v), veh/h	610	328	345	0	447	434	3	0	0	164	0	364
Grp Sat Flow(s),veh/h/ln	1755	1805	1897	1810	1805	1752	641	0	0	931	0	1610
Q Serve(g_s), s	18.0	10.3	10.3	0.0	24.0	24.0	0.0	0.0	0.0	0.2	0.0	0.0
Cycle Q Clear(g_c), s	18.0	10.3	10.3	0.0	24.0	24.0	22.2	0.0	0.0	22.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.47	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	653	1006	1057	2	550	534	244	0	0	357	0	797
V/C Ratio(X)	0.93	0.33	0.33	0.00	0.81	0.81	0.01	0.00	0.00	0.46	0.00	0.46
Avail Cap(c_a), veh/h	869	1006	1057	69	550	534	244	0	0	357	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.96	0.00	0.96
Uniform Delay (d), s/veh	42.1	12.6	12.6	0.0	33.7	33.7	26.7	0.0	0.0	32.8	0.0	17.3
Incr Delay (d2), s/veh	14.1	0.9	0.8	0.0	12.4	12.7	0.1	0.0	0.0	4.1	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	4.3	4.5	0.0	12.2	11.9	0.1	0.0	0.0	4.1	0.0	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	13.4	13.4	0.0	46.1	46.5	26.8	0.0	0.0	36.9	0.0	19.1
LnGrp LOS	E	B	B	A	D	D	C	A	A	D	A	B
Approach Vol, veh/h	1283			881			3			528		
Approach Delay, s/veh	33.8			46.3			26.8			24.6		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	39.5		26.5	39.0		39.5	0.0	65.5				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		29.0	35.0		29.0	7.0	57.0				
Max Q Clear Time (g_c+I1), s	25.2		21.0	27.0		25.2	0.0	13.3				
Green Ext Time (p_c), s	0.0		1.6	3.5		0.9	0.0	4.7				
Intersection Summary												
HCM 6th Ctrl Delay	36.1											
HCM 6th LOS	D											
Notes												

**OPENING BASE YEAR (2026) WITH PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	75	421	73	79	336
Future Volume (vph)	67	75	421	73	79	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.480	
Satd. Flow (perm)	1805	1615	1900	1615	912	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		88		86		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	79	88	495	86	93	395
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	88	495	86	93	395
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Efect Green (s)	6.7	6.7	77.9	77.9	77.9	77.9
Actuated g/C Ratio	0.07	0.07	0.82	0.82	0.82	0.82
v/c Ratio	0.62	0.45	0.32	0.06	0.12	0.25
Control Delay	62.7	16.7	2.0	0.1	3.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	16.7	2.0	0.1	3.3	3.3
LOS	E	B	A	A	A	A
Approach Delay	38.5		1.7			3.3
Approach LOS	D		A			A
Intersection Summary						
Area Type:	Other					
Cycle Length: 95						
Actuated Cycle Length: 95						
Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green						
Natural Cycle: 60						
Control Type: Actuated-Coordinated						
Maximum v/c Ratio: 0.62						
Intersection Signal Delay: 7.3				Intersection LOS: A		
Intersection Capacity Utilization 51.3%				ICU Level of Service A		
Analysis Period (min) 15						

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	88	495	86	93	395
v/c Ratio	0.62	0.45	0.32	0.06	0.12	0.25
Control Delay	62.7	16.7	2.0	0.1	3.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	16.7	2.0	0.1	3.3	3.3
Queue Length 50th (ft)	47	0	39	0	10	50
Queue Length 95th (ft)	86	39	45	m0	25	88
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	521	1557	1339	747	1557
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.17	0.32	0.06	0.12	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	75	421	73	79	336
Future Volume (veh/h)	67	75	421	73	79	336
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	79	88	495	86	93	395
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	105	94	1509	1279	687	1509
Arrive On Green	0.06	0.06	0.79	0.79	0.79	0.79
Sat Flow, veh/h	1810	1610	1900	1610	847	1900
Grp Volume(v), veh/h	79	88	495	86	93	395
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	847	1900
Q Serve(g_s), s	4.1	5.2	6.9	1.1	3.3	5.1
Cycle Q Clear(g_c), s	4.1	5.2	6.9	1.1	10.1	5.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	105	94	1509	1279	687	1509
V/C Ratio(X)	0.75	0.94	0.33	0.07	0.14	0.26
Avail Cap(c_a), veh/h	514	458	1509	1279	687	1509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	0.97	0.97
Uniform Delay (d), s/veh	44.1	44.6	2.7	2.1	4.1	2.5
Incr Delay (d2), s/veh	10.2	30.3	0.5	0.1	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.9	1.5	0.2	0.5	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	54.2	74.9	3.2	2.2	4.5	2.9
LnGrp LOS	D	E	A	A	A	A
Approach Vol, veh/h	167		581			488
Approach Delay, s/veh	65.1		3.1			3.2
Approach LOS	E		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	82.5		12.5		82.5	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	9.9		8.2		13.1	
Green Ext Time (p_c), s	3.4		0.5		3.0	
Intersection Summary						
HCM 6th Ctrl Delay			11.5			
HCM 6th LOS			B			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	628	0	0	484	246	9	1	2	140	0	344
Future Volume (vph)	322	628	0	0	484	246	9	1	2	140	0	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.949			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3426	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.850			0.750	
Satd. Flow (perm)	3502	3610	0	1900	3426	0	0	1578	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					100			2				142
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	335	654	0	0	504	256	9	1	2	146	0	358
Shared Lane Traffic (%)												
Lane Group Flow (vph)	335	654	0	0	760	0	0	12	0	0	146	358
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 1 Plus Project With Improvement (EAGp1) AM Signal Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.54	0.31			0.64			0.03			0.37	0.39
Control Delay	39.0	10.8			26.4			23.2			31.9	8.8
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	39.0	10.8			26.4			23.2			31.9	8.8
LOS	D	B			C			C			C	A
Approach Delay		20.3			26.4			23.3			15.5	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 21.3

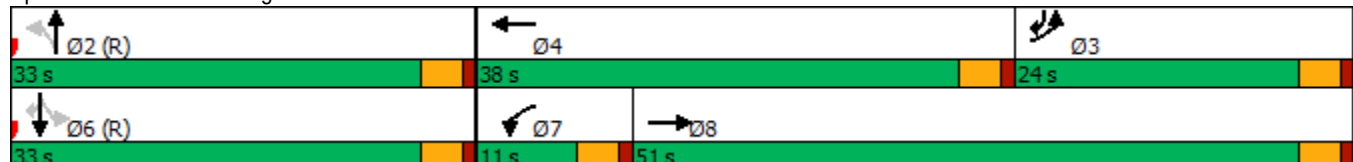
Intersection LOS: C

Intersection Capacity Utilization 65.9%

ICU Level of Service C

Analysis Period (min) 15

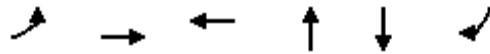
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	335	654	760	12	146	358
v/c Ratio	0.54	0.31	0.64	0.03	0.37	0.39
Control Delay	39.0	10.8	26.4	23.2	31.9	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	10.8	26.4	23.2	31.9	8.8
Queue Length 50th (ft)	95	99	176	4	76	91
Queue Length 95th (ft)	139	132	240	18	133	162
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1185	433	390	917
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.31	0.64	0.03	0.37	0.39
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	322	628	0	0	484	246	9	1	2	140	0	344
Future Volume (veh/h)	322	628	0	0	484	246	9	1	2	140	0	344
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	335	654	0	0	504	256	9	1	2	146	0	358
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	360	1814	0	2	757	383	310	38	56	587	0	729
Arrive On Green	0.10	0.50	0.00	0.00	0.33	0.33	0.35	0.35	0.35	0.35	0.00	0.35
Sat Flow, veh/h	3510	3705	0	1810	2320	1174	697	108	161	1459	0	1610
Grp Volume(v), veh/h	335	654	0	0	392	368	12	0	0	146	0	358
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1689	966	0	0	1459	0	1610
Q Serve(g_s), s	9.0	10.5	0.0	0.0	17.7	17.9	0.1	0.0	0.0	0.0	0.0	5.1
Cycle Q Clear(g_c), s	9.0	10.5	0.0	0.0	17.7	17.9	6.5	0.0	0.0	6.4	0.0	5.1
Prop In Lane	1.00		0.00	1.00		0.69	0.75		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	360	1814	0	2	589	551	405	0	0	587	0	729
V/C Ratio(X)	0.93	0.36	0.00	0.00	0.66	0.67	0.03	0.00	0.00	0.25	0.00	0.49
Avail Cap(c_a), veh/h	628	1814	0	76	589	551	405	0	0	587	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.96	0.00	0.96
Uniform Delay (d), s/veh	42.3	14.4	0.0	0.0	27.5	27.6	20.4	0.0	0.0	22.1	0.0	18.3
Incr Delay (d2), s/veh	12.8	0.6	0.0	0.0	5.8	6.3	0.1	0.0	0.0	1.0	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	4.2	0.0	0.0	8.4	8.0	0.2	0.0	0.0	2.5	0.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	14.9	0.0	0.0	33.4	33.9	20.5	0.0	0.0	23.1	0.0	20.6
LnGrp LOS	E	B	A	A	C	C	C	A	A	C	A	C
Approach Vol, veh/h	989		760				12		504			
Approach Delay, s/veh	28.5		33.6				20.5		21.3			
Approach LOS	C		C				C		C			
Timer - Assigned Phs	2		3		4		6		7		8	
Phs Duration (G+Y+Rc), s	40.3		16.7		38.0		40.3		0.0		54.7	
Change Period (Y+Rc), s	4.0		4.0		4.0		4.0		4.0		4.0	
Max Green Setting (Gmax), s	29.0		20.0		34.0		29.0		7.0		47.0	
Max Q Clear Time (g_c+I1), s	9.5		12.0		20.9		9.4		0.0		13.5	
Green Ext Time (p_c), s	0.0		0.8		4.1		2.0		0.0		5.1	
Intersection Summary												
HCM 6th Ctrl Delay			28.6									
HCM 6th LOS			C									
Notes												

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	64	672	86	84	363
Future Volume (vph)	110	64	672	86	84	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.358	
Satd. Flow (perm)	1805	1615	1900	1615	680	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		67		91		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	67	707	91	88	382
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	67	707	91	88	382
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	9.1	9.1	81.9	81.9	81.9	81.9
Actuated g/C Ratio	0.09	0.09	0.78	0.78	0.78	0.78
v/c Ratio	0.74	0.33	0.48	0.07	0.17	0.26
Control Delay	73.1	15.1	4.8	0.1	4.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	15.1	4.8	0.1	4.3	4.0
LOS	E	B	A	A	A	A
Approach Delay	51.9		4.3			4.1
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.74

Intersection Signal Delay: 10.2

Intersection LOS: B

Intersection Capacity Utilization 64.8%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	116	67	707	91	88	382
v/c Ratio	0.74	0.33	0.48	0.07	0.17	0.26
Control Delay	73.1	15.1	4.8	0.1	4.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.1	15.1	4.8	0.1	4.3	4.0
Queue Length 50th (ft)	77	0	145	0	12	57
Queue Length 95th (ft)	132	39	m158	m0	32	106
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	450	1482	1279	530	1482
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.15	0.48	0.07	0.17	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	64	672	86	84	363
Future Volume (veh/h)	110	64	672	86	84	363
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	116	67	707	91	88	382
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	123	109	1517	1286	539	1517
Arrive On Green	0.07	0.07	0.80	0.80	0.80	0.80
Sat Flow, veh/h	1810	1610	1900	1610	692	1900
Grp Volume(v), veh/h	116	67	707	91	88	382
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	692	1900
Q Serve(g_s), s	6.7	4.2	12.5	1.3	4.9	5.3
Cycle Q Clear(g_c), s	6.7	4.2	12.5	1.3	17.4	5.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	123	109	1517	1286	539	1517
V/C Ratio(X)	0.94	0.61	0.47	0.07	0.16	0.25
Avail Cap(c_a), veh/h	448	399	1517	1286	539	1517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.62	0.62	0.95	0.95
Uniform Delay (d), s/veh	48.7	47.6	3.4	2.3	6.2	2.7
Incr Delay (d2), s/veh	25.9	5.4	0.6	0.1	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	1.9	2.9	0.2	0.7	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	74.7	53.0	4.0	2.3	6.8	3.0
LnGrp LOS	E	D	A	A	A	A
Approach Vol, veh/h	183		798			470
Approach Delay, s/veh	66.7		3.8			3.7
Approach LOS	E		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	90.9		14.1		90.9	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	15.5		9.7		20.4	
Green Ext Time (p_c), s	5.5		0.5		3.1	
Intersection Summary						
HCM 6th Ctrl Delay			11.7			
HCM 6th LOS			B			

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	564	603	3	0	609	192	1	0	2	153	0	336
Future Volume (vph)	564	603	3	0	609	192	1	0	2	153	0	336
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.964			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3480	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.955			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3480	0	0	1651	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			41			94				56
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	627	670	3	0	677	213	1	0	2	170	0	373
Shared Lane Traffic (%)												
Lane Group Flow (vph)	627	673	0	0	890	0	0	3	0	0	170	373
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 1 Plus Project With Improvement (EAGp1) PM Spreadsheets Report
 Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.72	0.30			0.82			0.01			0.48	0.40
Control Delay	41.8	9.8			39.4			0.0			40.8	12.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	41.8	9.8			39.4			0.0			40.8	12.4
LOS	D	A			D			A			D	B
Approach Delay		25.2			39.4						21.3	
Approach LOS		C			D						C	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 29.0

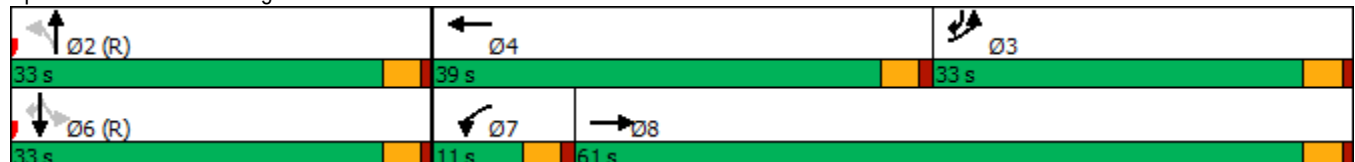
Intersection LOS: C

Intersection Capacity Utilization 71.7%

ICU Level of Service C

Analysis Period (min) 15

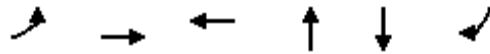
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	627	673	890	3	170	373
v/c Ratio	0.72	0.30	0.82	0.01	0.48	0.40
Control Delay	41.8	9.8	39.4	0.0	40.8	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	9.8	39.4	0.0	40.8	12.4
Queue Length 50th (ft)	199	102	278	0	104	90
Queue Length 95th (ft)	262	134	356	0	173	127
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1089	479	355	932
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.30	0.82	0.01	0.48	0.40
Intersection Summary						

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 											
Traffic Volume (veh/h)	564	603	3	0	609	192	1	0	2	153	0	336
Future Volume (veh/h)	564	603	3	0	609	192	1	0	2	153	0	336
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	627	670	3	0	677	213	1	0	2	170	0	373
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	669	2072	9	2	824	259	81	22	113	336	0	797
Arrive On Green	0.19	0.56	0.56	0.00	0.30	0.30	0.30	0.00	0.30	0.30	0.00	0.30
Sat Flow, veh/h	3510	3686	17	1810	2702	850	115	71	372	877	0	1610
Grp Volume(v), veh/h	627	328	345	0	452	438	3	0	0	170	0	373
Grp Sat Flow(s),veh/h/ln	1755	1805	1897	1810	1805	1747	558	0	0	877	0	1610
Q Serve(g_s), s	18.5	10.2	10.2	0.0	24.4	24.4	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	18.5	10.2	10.2	0.0	24.4	24.4	23.8	0.0	0.0	23.9	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.49	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	669	1015	1066	2	550	532	216	0	0	336	0	797
V/C Ratio(X)	0.94	0.32	0.32	0.00	0.82	0.82	0.01	0.00	0.00	0.51	0.00	0.47
Avail Cap(c_a), veh/h	869	1015	1066	69	550	532	216	0	0	336	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	41.9	12.3	12.3	0.0	33.9	33.9	27.3	0.0	0.0	33.8	0.0	17.4
Incr Delay (d2), s/veh	14.7	0.8	0.8	0.0	13.0	13.4	0.1	0.0	0.0	5.1	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	4.2	4.4	0.0	12.5	12.1	0.1	0.0	0.0	4.4	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.6	13.1	13.1	0.0	46.9	47.3	27.4	0.0	0.0	38.9	0.0	19.3
LnGrp LOS	E	B	B	A	D	D	C	A	A	D	A	B
Approach Vol, veh/h	1300			890			3			543		
Approach Delay, s/veh	34.1			47.1			27.4			25.4		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	39.0		27.0	39.0		39.0	0.0	66.0				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		29.0	35.0		29.0	7.0	57.0				
Max Q Clear Time (g_c+I1), s	26.8		21.5	27.4		26.9	0.0	13.2				
Green Ext Time (p_c), s	0.0		1.5	3.4		0.5	0.0	4.7				
Intersection Summary												
HCM 6th Ctrl Delay			36.6									
HCM 6th LOS			D									
Notes												

**OPENING BASE YEAR (2031) WITHOUT PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	12	523	52	5	450
Future Volume (vph)	32	12	523	52	5	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.424	
Satd. Flow (perm)	1805	1615	1900	1615	806	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		14		61		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	38	14	615	61	6	529
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	14	615	61	6	529
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	4.9	4.9	83.3	83.3	83.3	83.3
Actuated g/C Ratio	0.05	0.05	0.88	0.88	0.88	0.88
v/c Ratio	0.40	0.14	0.37	0.04	0.01	0.32
Control Delay	56.0	23.6	2.5	0.0	2.2	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	23.6	2.5	0.0	2.2	2.6
LOS	E	C	A	A	A	A
Approach Delay	47.2		2.3			2.6
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.40

Intersection Signal Delay: 4.3

Intersection LOS: A

Intersection Capacity Utilization 45.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	38	14	615	61	6	529
v/c Ratio	0.40	0.14	0.37	0.04	0.01	0.32
Control Delay	56.0	23.6	2.5	0.0	2.2	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	23.6	2.5	0.0	2.2	2.6
Queue Length 50th (ft)	23	0	87	0	1	63
Queue Length 95th (ft)	51	17	82	m0	3	102
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	469	1665	1423	706	1665
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.37	0.04	0.01	0.32

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	12	523	52	5	450
Future Volume (veh/h)	32	12	523	52	5	450
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	38	14	615	61	6	529
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	42	38	1575	1335	655	1575
Arrive On Green	0.02	0.02	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1810	1610	1900	1610	775	1900
Grp Volume(v), veh/h	38	14	615	61	6	529
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	775	1900
Q Serve(g_s), s	2.0	0.8	7.8	0.6	0.2	6.3
Cycle Q Clear(g_c), s	2.0	0.8	7.8	0.6	8.0	6.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	42	38	1575	1335	655	1575
V/C Ratio(X)	0.90	0.37	0.39	0.05	0.01	0.34
Avail Cap(c_a), veh/h	514	458	1575	1335	655	1575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.81	0.81	0.96	0.96
Uniform Delay (d), s/veh	46.3	45.7	2.0	1.4	3.1	1.9
Incr Delay (d2), s/veh	41.9	6.0	0.6	0.1	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.4	1.1	0.1	0.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	88.1	51.7	2.6	1.5	3.1	2.5
LnGrp LOS	F	D	A	A	A	A
Approach Vol, veh/h	52		676			535
Approach Delay, s/veh	78.3		2.5			2.5
Approach LOS	E		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	85.8		9.2		85.8	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	10.8		5.0		11.0	
Green Ext Time (p_c), s	4.4		0.1		3.4	
Intersection Summary						
HCM 6th Ctrl Delay			5.6			
HCM 6th LOS			A			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	694	0	0	534	268	10	1	2	145	0	362
Future Volume (vph)	349	694	0	0	534	268	10	1	2	145	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.950			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3430	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.840			0.749	
Satd. Flow (perm)	3502	3610	0	1900	3430	0	0	1562	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					98			2				115
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	364	723	0	0	556	279	10	1	2	151	0	377
Shared Lane Traffic (%)												
Lane Group Flow (vph)	364	723	0	0	835	0	0	13	0	0	151	377
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua Mansa/Wilson) Project Opening Base Year 2 With Improvement (EAG2) AM Peak Hour Synchro 10 Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.58	0.35			0.70			0.03			0.39	0.42
Control Delay	40.0	11.1			28.3			23.4			30.7	9.5
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	40.0	11.1			28.3			23.4			30.7	9.5
LOS	D	B			C			C			C	A
Approach Delay		20.8			28.3			23.4			15.6	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 22.2

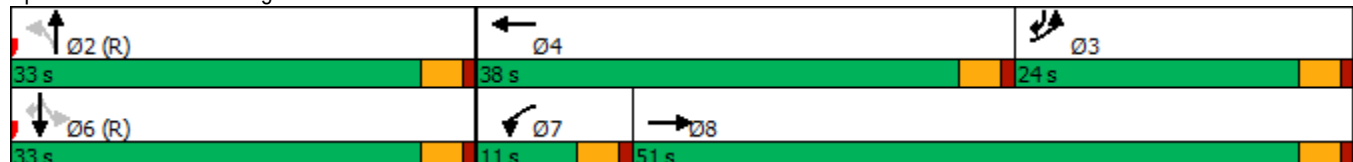
Intersection LOS: C

Intersection Capacity Utilization 69.1%

ICU Level of Service C

Analysis Period (min) 15

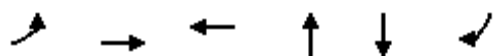
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	364	723	835	13	151	377
v/c Ratio	0.58	0.35	0.70	0.03	0.39	0.42
Control Delay	40.0	11.1	28.3	23.4	30.7	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	11.1	28.3	23.4	30.7	9.5
Queue Length 50th (ft)	104	112	203	5	76	97
Queue Length 95th (ft)	150	148	273	19	134	168
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1185	428	389	904
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.35	0.70	0.03	0.39	0.42
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	694	0	0	534	268	10	1	2	145	0	362
Future Volume (veh/h)	349	694	0	0	534	268	10	1	2	145	0	362
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	364	723	0	0	556	279	10	1	2	151	0	377
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	390	1845	0	2	760	381	302	33	49	575	0	729
Arrive On Green	0.11	0.51	0.00	0.00	0.33	0.33	0.34	0.34	0.34	0.34	0.00	0.34
Sat Flow, veh/h	3510	3705	0	1810	2329	1166	687	98	143	1462	0	1610
Grp Volume(v), veh/h	364	723	0	0	431	404	13	0	0	151	0	377
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1690	927	0	0	1462	0	1610
Q Serve(g_s), s	9.8	11.6	0.0	0.0	20.1	20.1	0.1	0.0	0.0	0.0	0.0	5.3
Cycle Q Clear(g_c), s	9.8	11.6	0.0	0.0	20.1	20.1	6.8	0.0	0.0	6.7	0.0	5.3
Prop In Lane	1.00		0.00	1.00		0.69	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	390	1845	0	2	589	551	384	0	0	575	0	729
V/C Ratio(X)	0.93	0.39	0.00	0.00	0.73	0.73	0.03	0.00	0.00	0.26	0.00	0.52
Avail Cap(c_a), veh/h	628	1845	0	76	589	551	384	0	0	575	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.96	0.00	0.96
Uniform Delay (d), s/veh	41.9	14.2	0.0	0.0	28.3	28.3	20.9	0.0	0.0	22.8	0.0	18.6
Incr Delay (d2), s/veh	14.8	0.6	0.0	0.0	7.8	8.4	0.2	0.0	0.0	1.1	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	4.7	0.0	0.0	9.7	9.2	0.2	0.0	0.0	2.6	0.0	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.7	14.8	0.0	0.0	36.1	36.7	21.1	0.0	0.0	23.9	0.0	21.1
LnGrp LOS	E	B	A	A	D	D	C	A	A	C	A	C
Approach Vol, veh/h	1087			835			13			528		
Approach Delay, s/veh	28.8			36.4			21.1			21.9		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	39.4		17.6	38.0		39.4	0.0	55.6				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		20.0	34.0		29.0	7.0	47.0				
Max Q Clear Time (g_c+I1), s	9.8		12.8	23.1		9.7	0.0	14.6				
Green Ext Time (p_c), s	0.0		0.8	4.1		2.1	0.0	5.7				
Intersection Summary												
HCM 6th Ctrl Delay			29.9									
HCM 6th LOS			C									
Notes												

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	54	23	783	26	9	474
Future Volume (vph)	54	23	783	26	9	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.320	
Satd. Flow (perm)	1805	1615	1900	1615	608	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		24		27		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	57	24	824	27	9	499
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	24	824	27	9	499
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	6.0	6.0	88.6	88.6	88.6	88.6
Actuated g/C Ratio	0.06	0.06	0.84	0.84	0.84	0.84
v/c Ratio	0.55	0.21	0.51	0.02	0.02	0.31
Control Delay	67.5	21.8	6.0	0.0	2.4	3.1
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	67.5	21.8	6.5	0.0	2.4	3.1
LOS	E	C	A	A	A	A
Approach Delay	54.0		6.3			3.1
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 7.8

Intersection LOS: A

Intersection Capacity Utilization 58.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	24	824	27	9	499
v/c Ratio	0.55	0.21	0.51	0.02	0.02	0.31
Control Delay	67.5	21.8	6.0	0.0	2.4	3.1
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	67.5	21.8	6.5	0.0	2.4	3.1
Queue Length 50th (ft)	38	0	205	0	1	65
Queue Length 95th (ft)	78	26	m191	m0	4	115
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	417	1603	1366	512	1603
Starvation Cap Reductn	0	0	378	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.67	0.02	0.02	0.31

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	54	23	783	26	9	474
Future Volume (veh/h)	54	23	783	26	9	474
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	57	24	824	27	9	499
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	58	51	1586	1344	535	1586
Arrive On Green	0.03	0.03	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1810	1610	1900	1610	658	1900
Grp Volume(v), veh/h	57	24	824	27	9	499
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	658	1900
Q Serve(g_s), s	3.3	1.5	13.3	0.3	0.4	6.2
Cycle Q Clear(g_c), s	3.3	1.5	13.3	0.3	13.7	6.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	58	51	1586	1344	535	1586
V/C Ratio(X)	0.99	0.47	0.52	0.02	0.02	0.31
Avail Cap(c_a), veh/h	448	399	1586	1344	535	1586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.54	0.54	0.93	0.93
Uniform Delay (d), s/veh	50.8	50.0	2.5	1.5	4.5	1.9
Incr Delay (d2), s/veh	52.7	6.5	0.7	0.0	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.7	2.1	0.0	0.1	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	103.5	56.5	3.2	1.5	4.6	2.4
LnGrp LOS	F	E	A	A	A	A
Approach Vol, veh/h	81		851			508
Approach Delay, s/veh	89.6		3.1			2.5
Approach LOS	F		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	94.7		10.3		94.7	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	16.3		6.3		16.7	
Green Ext Time (p_c), s	6.7		0.2		3.2	
Intersection Summary						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	606	666	4	0	673	204	1	0	2	163	0	362
Future Volume (vph)	606	666	4	0	673	204	1	0	2	163	0	362
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.965			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3484	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.954			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3484	0	0	1649	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			39			94				52
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	673	740	4	0	748	227	1	0	2	181	0	402
Shared Lane Traffic (%)												
Lane Group Flow (vph)	673	744	0	0	975	0	0	3	0	0	181	402
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Base Year 2 With Improvement (EAG2) PM Peak Hour Synchro 10 Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.78	0.33			0.90			0.01			0.51	0.43
Control Delay	43.9	10.1			45.5			0.0			39.5	12.1
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	43.9	10.1			45.5			0.0			39.5	12.1
LOS	D	B			D			A			D	B
Approach Delay		26.2			45.5						20.6	
Approach LOS		C			D						C	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 31.4

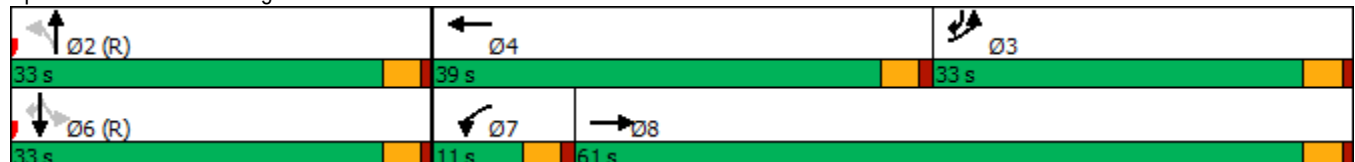
Intersection LOS: C

Intersection Capacity Utilization 75.6%

ICU Level of Service D

Analysis Period (min) 15

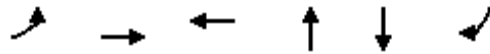
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	673	744	975	3	181	402
v/c Ratio	0.78	0.33	0.90	0.01	0.51	0.43
Control Delay	43.9	10.1	45.5	0.0	39.5	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	10.1	45.5	0.0	39.5	12.1
Queue Length 50th (ft)	217	116	317	0	108	146
Queue Length 95th (ft)	285	150	#436	0	180	98
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1088	479	355	930
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.33	0.90	0.01	0.51	0.43

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	606	666	4	0	673	204	1	0	2	163	0	362
Future Volume (veh/h)	606	666	4	0	673	204	1	0	2	163	0	362
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	673	740	4	0	748	227	1	0	2	181	0	402
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	713	2115	11	2	831	252	61	22	73	290	0	797
Arrive On Green	0.20	0.57	0.57	0.00	0.30	0.30	0.29	0.00	0.29	0.29	0.00	0.29
Sat Flow, veh/h	3510	3682	20	1810	2728	828	52	74	250	758	0	1610
Grp Volume(v), veh/h	673	363	381	0	495	480	3	0	0	181	0	402
Grp Sat Flow(s),veh/h/ln	1755	1805	1896	1810	1805	1751	376	0	0	758	0	1610
Q Serve(g_s), s	19.8	11.2	11.2	0.0	27.6	27.6	0.1	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	19.8	11.2	11.2	0.0	27.6	27.6	27.2	0.0	0.0	27.3	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.47	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	713	1037	1090	2	550	534	155	0	0	290	0	797
V/C Ratio(X)	0.94	0.35	0.35	0.00	0.90	0.90	0.02	0.00	0.00	0.62	0.00	0.50
Avail Cap(c_a), veh/h	869	1037	1090	69	550	534	155	0	0	290	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.95	0.00	0.95
Uniform Delay (d), s/veh	41.2	11.9	11.9	0.0	35.0	35.0	28.9	0.0	0.0	36.1	0.0	17.8
Incr Delay (d2), s/veh	16.6	0.9	0.9	0.0	20.3	20.7	0.2	0.0	0.0	9.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	4.6	4.8	0.0	14.9	14.6	0.1	0.0	0.0	5.2	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	12.8	12.8	0.0	55.2	55.7	29.1	0.0	0.0	45.4	0.0	20.0
LnGrp LOS	E	B	B	A	E	E	C	A	A	D	A	B
Approach Vol, veh/h	1417			975			3			583		
Approach Delay, s/veh	34.2			55.5			29.1			27.9		
Approach LOS	C			E			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	37.7		28.3	39.0		37.7	0.0	67.3				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		29.0	35.0		29.0	7.0	57.0				
Max Q Clear Time (g_c+I1), s	30.2		22.8	30.6		30.3	0.0	14.2				
Green Ext Time (p_c), s	0.0		1.5	2.4		0.0	0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay			39.9									
HCM 6th LOS			D									
Notes												

**OPENING BASE YEAR (2031) WITH PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	73	77	470	81	81	379
Future Volume (vph)	73	77	470	81	81	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.443	
Satd. Flow (perm)	1805	1615	1900	1615	842	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		91		95		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	86	91	553	95	95	446
Shared Lane Traffic (%)						
Lane Group Flow (vph)	86	91	553	95	95	446
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	7.1	7.1	73.9	73.9	73.9	73.9
Actuated g/C Ratio	0.07	0.07	0.78	0.78	0.78	0.78
v/c Ratio	0.64	0.45	0.37	0.07	0.15	0.30
Control Delay	63.3	16.1	2.3	0.1	3.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	16.1	2.3	0.1	3.6	3.9
LOS	E	B	A	A	A	A
Approach Delay	39.0		2.0			3.9
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 7.5

Intersection LOS: A

Intersection Capacity Utilization 53.9%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	86	91	553	95	95	446
v/c Ratio	0.64	0.45	0.37	0.07	0.15	0.30
Control Delay	63.3	16.1	2.3	0.1	3.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.3	16.1	2.3	0.1	3.6	3.9
Queue Length 50th (ft)	52	0	60	0	11	61
Queue Length 95th (ft)	91	39	56	m0	27	103
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	524	1478	1277	655	1478
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.17	0.37	0.07	0.15	0.30

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	73	77	470	81	81	379
Future Volume (veh/h)	73	77	470	81	81	379
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	86	91	553	95	95	446
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	110	98	1505	1275	638	1505
Arrive On Green	0.06	0.06	0.79	0.79	0.79	0.79
Sat Flow, veh/h	1810	1610	1900	1610	796	1900
Grp Volume(v), veh/h	86	91	553	95	95	446
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	796	1900
Q Serve(g_s), s	4.5	5.3	8.1	1.2	3.8	6.1
Cycle Q Clear(g_c), s	4.5	5.3	8.1	1.2	11.9	6.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	110	98	1505	1275	638	1505
V/C Ratio(X)	0.78	0.93	0.37	0.07	0.15	0.30
Avail Cap(c_a), veh/h	514	458	1505	1275	638	1505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.79	0.79	0.96	0.96
Uniform Delay (d), s/veh	44.0	44.4	2.9	2.2	4.6	2.7
Incr Delay (d2), s/veh	11.5	28.4	0.5	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.9	1.7	0.2	0.5	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.5	72.9	3.4	2.3	5.1	3.2
LnGrp LOS	E	E	A	A	A	A
Approach Vol, veh/h	177		648			541
Approach Delay, s/veh	64.4		3.3			3.5
Approach LOS	E		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	82.2		12.8		82.2	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	11.1		8.3		14.9	
Green Ext Time (p_c), s	3.9		0.5		3.4	
Intersection Summary						
HCM 6th Ctrl Delay			11.3			
HCM 6th LOS			B			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	694	0	0	534	272	10	1	2	155	0	380
Future Volume (vph)	357	694	0	0	534	272	10	1	2	155	0	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.949			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3426	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.837			0.749	
Satd. Flow (perm)	3502	3610	0	1900	3426	0	0	1557	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					100			2				114
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	372	723	0	0	556	283	10	1	2	161	0	396
Shared Lane Traffic (%)												
Lane Group Flow (vph)	372	723	0	0	839	0	0	13	0	0	161	396
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.59	0.35			0.71			0.03			0.41	0.44
Control Delay	40.3	11.1			28.4			23.4			32.3	10.6
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	40.3	11.1			28.4			23.4			32.3	10.6
LOS	D	B			C			C			C	B
Approach Delay		21.0			28.4			23.4			16.9	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 22.6

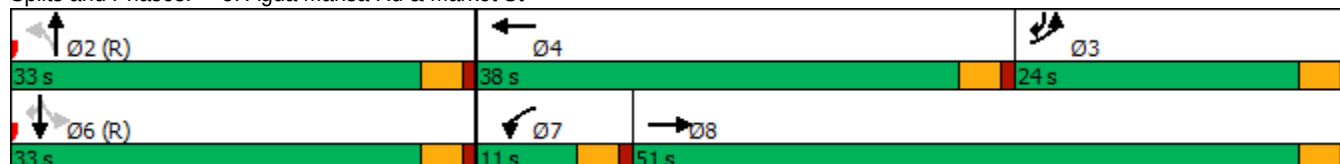
Intersection LOS: C

Intersection Capacity Utilization 70.3%

ICU Level of Service C

Analysis Period (min) 15

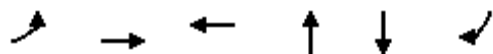
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	372	723	839	13	161	396
v/c Ratio	0.59	0.35	0.71	0.03	0.41	0.44
Control Delay	40.3	11.1	28.4	23.4	32.3	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	11.1	28.4	23.4	32.3	10.6
Queue Length 50th (ft)	107	112	204	5	84	121
Queue Length 95th (ft)	153	148	274	19	146	198
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1185	427	389	904
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.35	0.71	0.03	0.41	0.44
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	357	694	0	0	534	272	10	1	2	155	0	380
Future Volume (veh/h)	357	694	0	0	534	272	10	1	2	155	0	380
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	372	723	0	0	556	283	10	1	2	161	0	396
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	398	1853	0	2	756	384	290	32	46	571	0	729
Arrive On Green	0.11	0.51	0.00	0.00	0.33	0.33	0.34	0.34	0.34	0.34	0.00	0.34
Sat Flow, veh/h	3510	3705	0	1810	2316	1177	658	95	137	1459	0	1610
Grp Volume(v), veh/h	372	723	0	0	433	406	13	0	0	161	0	396
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1688	890	0	0	1459	0	1610
Q Serve(g_s), s	10.0	11.6	0.0	0.0	20.2	20.3	0.1	0.0	0.0	0.0	0.0	6.2
Cycle Q Clear(g_c), s	10.0	11.6	0.0	0.0	20.2	20.3	7.4	0.0	0.0	7.3	0.0	6.2
Prop In Lane	1.00		0.00	1.00		0.70	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	398	1853	0	2	589	551	369	0	0	571	0	729
V/C Ratio(X)	0.93	0.39	0.00	0.00	0.74	0.74	0.04	0.00	0.00	0.28	0.00	0.54
Avail Cap(c_a), veh/h	628	1853	0	76	589	551	369	0	0	571	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	41.8	14.1	0.0	0.0	28.4	28.4	21.1	0.0	0.0	23.2	0.0	18.9
Incr Delay (d2), s/veh	15.3	0.6	0.0	0.0	8.0	8.5	0.2	0.0	0.0	1.2	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	4.7	0.0	0.0	9.8	9.3	0.2	0.0	0.0	2.8	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	14.7	0.0	0.0	36.3	36.9	21.3	0.0	0.0	24.3	0.0	21.6
LnGrp LOS	E	B	A	A	D	D	C	A	A	C	A	C
Approach Vol, veh/h	1095				839				13			
Approach Delay, s/veh	29.1				36.6				21.3			
Approach LOS	C				D				C			
Timer - Assigned Phs	2		3	4		6		7	8			
Phs Duration (G+Y+Rc), s	39.2		17.8	38.0		39.2		0.0	55.8			
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0		4.0	4.0			
Max Green Setting (Gmax), s	29.0		20.0	34.0		29.0		7.0	47.0			
Max Q Clear Time (g_c+I1), s	10.4		13.0	23.3		10.3		0.0	14.6			
Green Ext Time (p_c), s	0.0		0.8	4.1		2.3		0.0	5.7			
Intersection Summary												
HCM 6th Ctrl Delay	30.1											
HCM 6th LOS	C											
Notes												

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	118	67	746	92	86	408
Future Volume (vph)	118	67	746	92	86	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.318	
Satd. Flow (perm)	1805	1615	1900	1615	604	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		71		97		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	124	71	785	97	91	429
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	71	785	97	91	429
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	9.6	9.6	81.4	81.4	81.4	81.4
Actuated g/C Ratio	0.09	0.09	0.78	0.78	0.78	0.78
v/c Ratio	0.76	0.34	0.53	0.08	0.19	0.29
Control Delay	73.2	14.6	5.5	0.1	4.8	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	14.6	5.5	0.1	4.8	4.4
LOS	E	B	A	A	A	A
Approach Delay	51.8		4.9			4.5
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 10.5

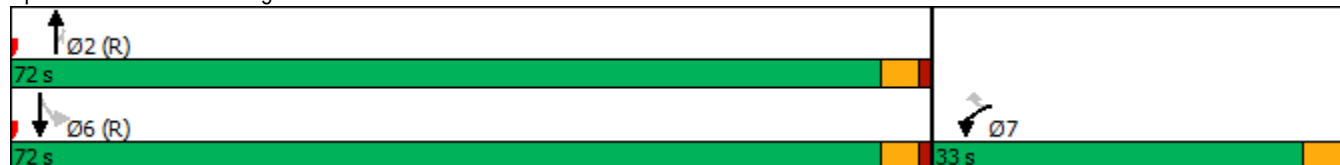
Intersection LOS: B

Intersection Capacity Utilization 69.1%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	71	785	97	91	429
v/c Ratio	0.76	0.34	0.53	0.08	0.19	0.29
Control Delay	73.2	14.6	5.5	0.1	4.8	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	14.6	5.5	0.1	4.8	4.4
Queue Length 50th (ft)	83	0	172	0	13	68
Queue Length 95th (ft)	138	40	m166	m0	35	126
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	453	1473	1274	468	1473
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.16	0.53	0.08	0.19	0.29

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	118	67	746	92	86	408
Future Volume (veh/h)	118	67	746	92	86	408
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	124	71	785	97	91	429
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	132	117	1508	1278	483	1508
Arrive On Green	0.07	0.07	0.79	0.79	0.79	0.79
Sat Flow, veh/h	1810	1610	1900	1610	639	1900
Grp Volume(v), veh/h	124	71	785	97	91	429
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	639	1900
Q Serve(g_s), s	7.2	4.5	15.2	1.4	6.1	6.3
Cycle Q Clear(g_c), s	7.2	4.5	15.2	1.4	21.4	6.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	132	117	1508	1278	483	1508
V/C Ratio(X)	0.94	0.61	0.52	0.08	0.19	0.28
Avail Cap(c_a), veh/h	448	399	1508	1278	483	1508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.51	0.51	0.93	0.93
Uniform Delay (d), s/veh	48.5	47.2	3.8	2.4	7.6	2.9
Incr Delay (d2), s/veh	24.5	5.0	0.7	0.1	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	2.0	3.5	0.3	0.8	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	72.9	52.2	4.5	2.4	8.4	3.3
LnGrp LOS	E	D	A	A	A	A
Approach Vol, veh/h	195		882			520
Approach Delay, s/veh	65.4		4.2			4.2
Approach LOS	E		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	90.4		14.6		90.4	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	18.2		10.2		24.4	
Green Ext Time (p_c), s	6.4		0.5		3.6	
Intersection Summary						
HCM 6th Ctrl Delay			11.7			
HCM 6th LOS			B			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	623	666	4	0	673	213	1	0	2	169	0	372
Future Volume (vph)	623	666	4	0	673	213	1	0	2	169	0	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.964			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3480	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.953			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3480	0	0	1648	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			42			94				52
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	692	740	4	0	748	237	1	0	2	188	0	413
Shared Lane Traffic (%)												
Lane Group Flow (vph)	692	744	0	0	985	0	0	3	0	0	188	413
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.80	0.33			0.90			0.01			0.53	0.44
Control Delay	45.1	10.1			46.3			0.0			41.8	13.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	45.1	10.1			46.3			0.0			41.8	13.2
LOS	D	B			D			A			D	B
Approach Delay		26.9			46.3						22.1	
Approach LOS		C			D						C	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 32.3

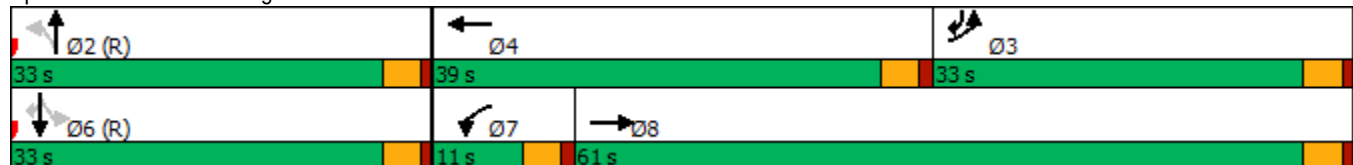
Intersection LOS: C

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

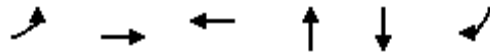
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	692	744	985	3	188	413
v/c Ratio	0.80	0.33	0.90	0.01	0.53	0.44
Control Delay	45.1	10.1	46.3	0.0	41.8	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	10.1	46.3	0.0	41.8	13.2
Queue Length 50th (ft)	225	116	320	0	116	100
Queue Length 95th (ft)	293	150	#442	0	190	138
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1089	478	355	930
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.33	0.90	0.01	0.53	0.44

Intersection Summary

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

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	623	666	4	0	673	213	1	0	2	169	0	372
Future Volume (veh/h)	623	666	4	0	673	213	1	0	2	169	0	372
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	692	740	4	0	748	237	1	0	2	188	0	413
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	730	2133	12	2	822	260	50	21	51	266	0	797
Arrive On Green	0.21	0.58	0.58	0.00	0.30	0.30	0.29	0.00	0.29	0.29	0.00	0.29
Sat Flow, veh/h	3510	3682	20	1810	2697	854	15	75	179	688	0	1610
Grp Volume(v), veh/h	692	363	381	0	501	484	3	0	0	188	0	413
Grp Sat Flow(s),veh/h/ln	1755	1805	1896	1810	1805	1746	268	0	0	688	0	1610
Q Serve(g_s), s	20.4	11.1	11.1	0.0	28.0	28.0	0.1	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	20.4	11.1	11.1	0.0	28.0	28.0	29.2	0.0	0.0	29.3	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.49	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	730	1046	1099	2	550	532	123	0	0	266	0	797
V/C Ratio(X)	0.95	0.35	0.35	0.00	0.91	0.91	0.02	0.00	0.00	0.71	0.00	0.52
Avail Cap(c_a), veh/h	869	1046	1099	69	550	532	123	0	0	266	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.92	0.00	0.92
Uniform Delay (d), s/veh	41.0	11.6	11.6	0.0	35.1	35.1	29.7	0.0	0.0	37.3	0.0	18.0
Incr Delay (d2), s/veh	17.4	0.9	0.9	0.0	21.6	22.1	0.4	0.0	0.0	13.6	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	4.5	4.7	0.0	15.3	14.9	0.1	0.0	0.0	5.7	0.0	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	12.5	12.5	0.0	56.7	57.3	30.1	0.0	0.0	50.9	0.0	20.2
LnGrp LOS	E	B	B	A	E	E	C	A	A	D	A	C
Approach Vol, veh/h	1436			985			3			601		
Approach Delay, s/veh	34.6			57.0			30.1			29.8		
Approach LOS	C			E			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	37.2		28.8	39.0		37.2	0.0	67.8				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		29.0	35.0		29.0	7.0	57.0				
Max Q Clear Time (g_c+I1), s	32.2		23.4	31.0		32.3	0.0	14.1				
Green Ext Time (p_c), s	0.0		1.4	2.2		0.0	0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay			40.9									
HCM 6th LOS			D									
Notes												

**OPENING YEAR (2026) WITHOUT PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	11	587	51	8	466
Future Volume (vph)	29	11	587	51	8	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.387	
Satd. Flow (perm)	1805	1615	1900	1615	735	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		13		60		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	34	13	691	60	9	548
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	13	691	60	9	548
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	4.8	4.8	83.4	83.4	83.4	83.4
Actuated g/C Ratio	0.05	0.05	0.88	0.88	0.88	0.88
v/c Ratio	0.37	0.14	0.41	0.04	0.01	0.33
Control Delay	54.9	24.2	2.8	0.0	2.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	24.2	2.8	0.0	2.1	2.6
LOS	D	C	A	A	A	A
Approach Delay	46.4		2.6			2.6
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.41

Intersection Signal Delay: 4.1

Intersection LOS: A

Intersection Capacity Utilization 48.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	13	691	60	9	548
v/c Ratio	0.37	0.14	0.41	0.04	0.01	0.33
Control Delay	54.9	24.2	2.8	0.0	2.1	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	24.2	2.8	0.0	2.1	2.6
Queue Length 50th (ft)	20	0	99	0	1	65
Queue Length 95th (ft)	47	18	92	m0	4	104
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	468	1668	1425	645	1668
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.41	0.04	0.01	0.33

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	11	587	51	8	466
Future Volume (veh/h)	29	11	587	51	8	466
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	34	13	691	60	9	548
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	38	33	1581	1339	608	1581
Arrive On Green	0.02	0.02	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1810	1610	1900	1610	723	1900
Grp Volume(v), veh/h	34	13	691	60	9	548
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	723	1900
Q Serve(g_s), s	1.8	0.8	9.1	0.6	0.3	6.5
Cycle Q Clear(g_c), s	1.8	0.8	9.1	0.6	9.4	6.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	38	33	1581	1339	608	1581
V/C Ratio(X)	0.90	0.39	0.44	0.04	0.01	0.35
Avail Cap(c_a), veh/h	514	458	1581	1339	608	1581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.78	0.78	0.96	0.96
Uniform Delay (d), s/veh	46.4	45.9	2.1	1.4	3.4	1.9
Incr Delay (d2), s/veh	46.7	7.2	0.7	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.4	1.3	0.1	0.0	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	93.1	53.1	2.8	1.4	3.4	2.5
LnGrp LOS	F	D	A	A	A	A
Approach Vol, veh/h	47		751			557
Approach Delay, s/veh	82.1		2.7			2.5
Approach LOS	F		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	86.0		9.0		86.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	12.1		4.8		12.4	
Green Ext Time (p_c), s	5.1		0.1		3.6	
Intersection Summary						
HCM 6th Ctrl Delay			5.4			
HCM 6th LOS			A			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	363	628	0	0	484	313	9	1	2	147	0	371
Future Volume (vph)	363	628	0	0	484	313	9	1	2	147	0	371
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.941			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3397	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.848			0.750	
Satd. Flow (perm)	3502	3610	0	1900	3397	0	0	1574	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					165			2				143
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	378	654	0	0	504	326	9	1	2	153	0	386
Shared Lane Traffic (%)												
Lane Group Flow (vph)	378	654	0	0	830	0	0	12	0	0	153	386
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 1 With Improvement (EAGC1) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.60	0.31			0.68			0.03			0.39	0.42
Control Delay	40.5	10.8			25.2			23.2			30.5	8.5
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	40.5	10.8			25.2			23.2			30.5	8.5
LOS	D	B			C			C			C	A
Approach Delay		21.7			25.2			23.3			14.7	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 21.3

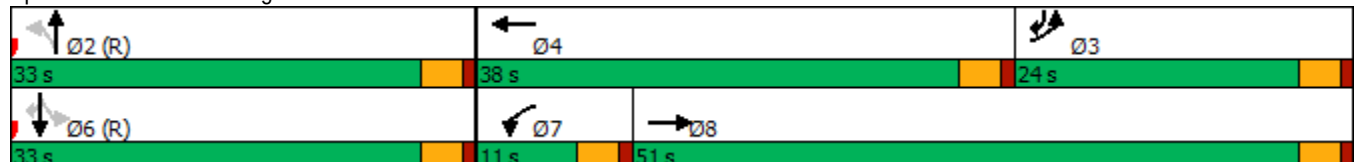
Intersection LOS: C

Intersection Capacity Utilization 69.7%

ICU Level of Service C

Analysis Period (min) 15

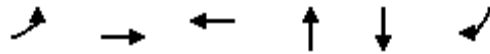
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	378	654	830	12	153	386
v/c Ratio	0.60	0.31	0.68	0.03	0.39	0.42
Control Delay	40.5	10.8	25.2	23.2	30.5	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	10.8	25.2	23.2	30.5	8.5
Queue Length 50th (ft)	109	99	181	4	77	89
Queue Length 95th (ft)	156	132	250	18	135	159
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1219	432	390	917
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.31	0.68	0.03	0.39	0.42
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 	 			 			 			 		
Traffic Volume (veh/h)	363	628	0	0	484	313	9	1	2	147	0	371	
Future Volume (veh/h)	363	628	0	0	484	313	9	1	2	147	0	371	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No			No			No			
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Adj Flow Rate, veh/h	378	654	0	0	504	326	9	1	2	153	0	386	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0	
Cap, veh/h	404	1860	0	2	686	443	289	36	52	567	0	729	
Arrive On Green	0.12	0.52	0.00	0.00	0.33	0.33	0.34	0.34	0.34	0.34	0.00	0.34	
Sat Flow, veh/h	3510	3705	0	1810	2103	1357	660	105	153	1456	0	1610	
Grp Volume(v), veh/h	378	654	0	0	432	398	12	0	0	153	0	386	
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1656	918	0	0	1456	0	1610	
Q Serve(g_s), s	10.1	10.2	0.0	0.0	20.2	20.2	0.1	0.0	0.0	0.0	0.0	5.5	
Cycle Q Clear(g_c), s	10.1	10.2	0.0	0.0	20.2	20.2	7.1	0.0	0.0	7.0	0.0	5.5	
Prop In Lane	1.00		0.00	1.00		0.82	0.75		0.17	1.00		1.00	
Lane Grp Cap(c), veh/h	404	1860	0	2	589	540	376	0	0	567	0	729	
V/C Ratio(X)	0.94	0.35	0.00	0.00	0.73	0.74	0.03	0.00	0.00	0.27	0.00	0.53	
Avail Cap(c_a), veh/h	628	1860	0	76	589	540	376	0	0	567	0	729	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.95	0.00	0.95	
Uniform Delay (d), s/veh	41.7	13.6	0.0	0.0	28.3	28.4	21.2	0.0	0.0	23.2	0.0	18.7	
Incr Delay (d2), s/veh	15.7	0.5	0.0	0.0	7.9	8.7	0.2	0.0	0.0	1.1	0.0	2.6	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	5.2	4.1	0.0	0.0	9.7	9.1	0.2	0.0	0.0	2.7	0.0	6.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	57.4	14.2	0.0	0.0	36.3	37.0	21.4	0.0	0.0	24.3	0.0	21.3	
LnGrp LOS	E	B	A	A	D	D	C	A	A	C	A	C	
Approach Vol, veh/h	1032			830			12			539			
Approach Delay, s/veh	30.0			36.6			21.4			22.2			
Approach LOS	C			D			C			C			
Timer - Assigned Phs	2		3	4		6	7	8					
Phs Duration (G+Y+Rc), s	39.1		17.9	38.0		39.1	0.0	55.9					
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0					
Max Green Setting (Gmax), s	29.0		20.0	34.0		29.0	7.0	47.0					
Max Q Clear Time (g_c+I1), s	10.1		13.1	23.2		10.0	0.0	13.2					
Green Ext Time (p_c), s	0.0		0.8	4.0		2.2	0.0	5.1					
Intersection Summary													
HCM 6th Ctrl Delay			30.5										
HCM 6th LOS			C										
Notes													

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	52	24	774	24	9	543
Future Volume (vph)	52	24	774	24	9	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.324	
Satd. Flow (perm)	1805	1615	1900	1615	616	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		25		25		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	25	815	25	9	572
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	25	815	25	9	572
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	5.9	5.9	88.7	88.7	88.7	88.7
Actuated g/C Ratio	0.06	0.06	0.84	0.84	0.84	0.84
v/c Ratio	0.54	0.22	0.51	0.02	0.02	0.36
Control Delay	67.1	21.8	5.9	0.0	2.4	3.3
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	67.1	21.8	6.4	0.0	2.4	3.3
LOS	E	C	A	A	A	A
Approach Delay	53.0		6.2			3.3
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 7.6

Intersection LOS: A

Intersection Capacity Utilization 58.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	55	25	815	25	9	572
v/c Ratio	0.54	0.22	0.51	0.02	0.02	0.36
Control Delay	67.1	21.8	5.9	0.0	2.4	3.3
Queue Delay	0.0	0.0	0.5	0.0	0.0	0.0
Total Delay	67.1	21.8	6.4	0.0	2.4	3.3
Queue Length 50th (ft)	37	0	203	0	1	78
Queue Length 95th (ft)	76	26	200	m0	4	136
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	418	1604	1367	520	1604
Starvation Cap Reductn	0	0	378	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.06	0.66	0.02	0.02	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	52	24	774	24	9	543
Future Volume (veh/h)	52	24	774	24	9	543
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	55	25	815	25	9	572
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	57	51	1587	1345	542	1587
Arrive On Green	0.03	0.03	0.84	0.84	0.84	0.84
Sat Flow, veh/h	1810	1610	1900	1610	665	1900
Grp Volume(v), veh/h	55	25	815	25	9	572
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	665	1900
Q Serve(g_s), s	3.2	1.6	13.0	0.3	0.4	7.5
Cycle Q Clear(g_c), s	3.2	1.6	13.0	0.3	13.4	7.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	57	51	1587	1345	542	1587
V/C Ratio(X)	0.96	0.49	0.51	0.02	0.02	0.36
Avail Cap(c_a), veh/h	448	399	1587	1345	542	1587
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.56	0.56	0.92	0.92
Uniform Delay (d), s/veh	50.8	50.0	2.5	1.5	4.4	2.0
Incr Delay (d2), s/veh	46.1	7.1	0.7	0.0	0.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.8	2.1	0.0	0.1	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	96.9	57.1	3.2	1.5	4.5	2.6
LnGrp LOS	F	E	A	A	A	A
Approach Vol, veh/h	80		840			581
Approach Delay, s/veh	84.5		3.1			2.7
Approach LOS	F		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	94.7		10.3		94.7	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	16.0		6.2		16.4	
Green Ext Time (p_c), s	6.6		0.2		3.9	
Intersection Summary						
HCM 6th Ctrl Delay			7.3			
HCM 6th LOS			A			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	596	603	3	0	609	203	1	0	2	214	0	379
Future Volume (vph)	596	603	3	0	609	203	1	0	2	214	0	379
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.962			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3473	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.949			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3473	0	0	1641	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			45			94				56
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	662	670	3	0	677	226	1	0	2	238	0	421
Shared Lane Traffic (%)												
Lane Group Flow (vph)	662	673	0	0	903	0	0	3	0	0	238	421
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 1 With Improvement (EAGC1) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 5

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.76	0.30			0.83			0.01			0.67	0.45
Control Delay	43.4	9.8			40.0			0.0			45.2	12.0
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	43.4	9.8			40.0			0.0			45.2	12.0
LOS	D	A			D			A			D	B
Approach Delay		26.4			40.0						24.0	
Approach LOS		C			D						C	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 30.1

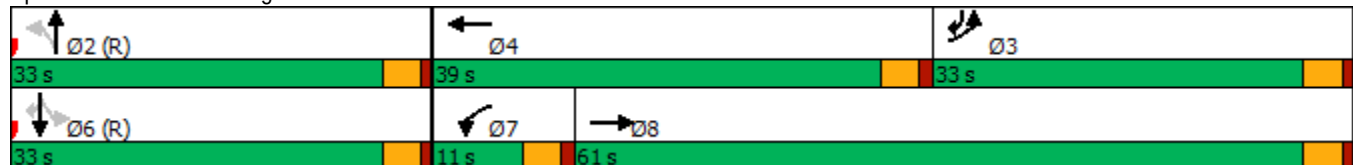
Intersection LOS: C

Intersection Capacity Utilization 76.3%

ICU Level of Service D

Analysis Period (min) 15

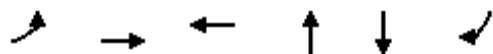
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	662	673	903	3	238	421
v/c Ratio	0.76	0.30	0.83	0.01	0.67	0.45
Control Delay	43.4	9.8	40.0	0.0	45.2	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	9.8	40.0	0.0	45.2	12.0
Queue Length 50th (ft)	213	102	282	0	148	151
Queue Length 95th (ft)	279	134	363	0	235	96
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1089	477	355	932
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.30	0.83	0.01	0.67	0.45
Intersection Summary						

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	596	603	3	0	609	203	1	0	2	214	0	379
Future Volume (veh/h)	596	603	3	0	609	203	1	0	2	214	0	379
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	662	670	3	0	677	226	1	0	2	238	0	421
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	703	2107	9	2	810	270	46	22	43	261	0	797
Arrive On Green	0.20	0.57	0.57	0.00	0.30	0.30	0.30	0.00	0.30	0.30	0.00	0.30
Sat Flow, veh/h	3510	3686	17	1810	2658	887	0	73	146	653	0	1610
Grp Volume(v), veh/h	662	328	345	0	460	443	3	0	0	238	0	421
Grp Sat Flow(s),veh/h/ln	1755	1805	1897	1810	1805	1740	219	0	0	653	0	1610
Q Serve(g_s), s	19.5	10.0	10.0	0.0	24.9	25.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	19.5	10.0	10.0	0.0	24.9	25.0	31.0	0.0	0.0	31.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.51	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	703	1032	1084	2	550	530	110	0	0	261	0	797
V/C Ratio(X)	0.94	0.32	0.32	0.00	0.84	0.84	0.03	0.00	0.00	0.91	0.00	0.53
Avail Cap(c_a), veh/h	869	1032	1084	69	550	530	110	0	0	261	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	41.4	11.8	11.8	0.0	34.0	34.1	29.6	0.0	0.0	40.0	0.0	18.1
Incr Delay (d2), s/veh	16.1	0.8	0.8	0.0	14.0	14.5	0.5	0.0	0.0	35.2	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	4.1	4.3	0.0	12.8	12.5	0.1	0.0	0.0	8.8	0.0	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	12.6	12.5	0.0	48.0	48.5	30.1	0.0	0.0	75.2	0.0	20.5
LnGrp LOS	E	B	B	A	D	D	C	A	A	E	A	C
Approach Vol, veh/h	1335			903			3			659		
Approach Delay, s/veh	34.9			48.3			30.1			40.2		
Approach LOS	C			D			C			D		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	38.0		28.0	39.0		38.0	0.0	67.0				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		29.0	35.0		29.0	7.0	57.0				
Max Q Clear Time (g_c+I1), s	34.0		22.5	28.0		34.0	0.0	13.0				
Green Ext Time (p_c), s	0.0		1.5	3.3		0.0	0.0	4.7				
Intersection Summary												
HCM 6th Ctrl Delay			40.2									
HCM 6th LOS			D									
Notes												

**OPENING YEAR (2026) WITH PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/29/2021

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	75	534	77	83	395
Future Volume (vph)	67	75	534	77	83	395
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.308	
Satd. Flow (perm)	1805	1615	1900	1615	585	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		88		91		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	79	88	628	91	98	465
Shared Lane Traffic (%)						
Lane Group Flow (vph)	79	88	628	91	98	465
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	27.0	27.0	54.0	54.0	54.0	54.0
Actuated g/C Ratio	0.28	0.28	0.57	0.57	0.57	0.57
v/c Ratio	0.15	0.17	0.58	0.10	0.30	0.43
Control Delay	26.5	6.7	10.2	1.8	13.7	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	6.7	10.2	1.8	13.7	13.3
LOS	C	A	B	A	B	B
Approach Delay	16.1		9.1			13.3
Approach LOS	B		A			B

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.58

Intersection Signal Delay: 11.6

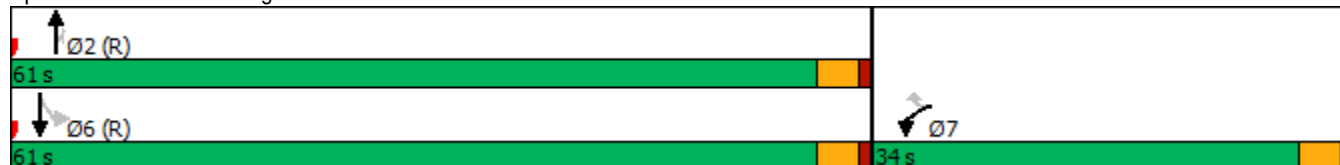
Intersection LOS: B

Intersection Capacity Utilization 57.3%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	79	88	628	91	98	465
v/c Ratio	0.15	0.17	0.58	0.10	0.30	0.43
Control Delay	26.5	6.7	10.2	1.8	13.7	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	6.7	10.2	1.8	13.7	13.3
Queue Length 50th (ft)	36	0	163	6	29	150
Queue Length 95th (ft)	67	31	207	m11	57	204
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	521	1080	957	332	1080
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.17	0.58	0.10	0.30	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/29/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	75	534	77	83	395
Future Volume (veh/h)	67	75	534	77	83	395
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	79	88	628	91	98	465
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	514	458	1080	915	340	1080
Arrive On Green	0.28	0.28	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1810	1610	1900	1610	745	1900
Grp Volume(v), veh/h	79	88	628	91	98	465
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	745	1900
Q Serve(g_s), s	3.1	3.9	20.2	2.5	9.3	13.3
Cycle Q Clear(g_c), s	3.1	3.9	20.2	2.5	29.5	13.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	514	458	1080	915	340	1080
V/C Ratio(X)	0.15	0.19	0.58	0.10	0.29	0.43
Avail Cap(c_a), veh/h	514	458	1080	915	340	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.77	0.77	0.96	0.96
Uniform Delay (d), s/veh	25.4	25.7	13.2	9.4	22.7	11.7
Incr Delay (d2), s/veh	0.6	0.9	1.8	0.2	2.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.6	7.9	0.8	1.7	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.1	26.7	15.0	9.5	24.8	12.9
LnGrp LOS	C	C	B	A	C	B
Approach Vol, veh/h	167		719			563
Approach Delay, s/veh	26.4		14.3			15.0
Approach LOS	C		B			B
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	61.0		34.0		61.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	23.2		6.9		32.5	
Green Ext Time (p_c), s	4.5		0.5		3.4	
Intersection Summary						
HCM 6th Ctrl Delay			16.0			
HCM 6th LOS			B			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	369	628	0	0	484	316	9	1	2	156	0	387
Future Volume (vph)	369	628	0	0	484	316	9	1	2	156	0	387
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.941			0.977				0.850
Flt Protected	0.950							0.964			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3397	0	0	1789	0	0	1805	1615
Flt Permitted	0.950							0.845			0.750	
Satd. Flow (perm)	3502	3610	0	1900	3397	0	0	1569	0	0	1425	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					170			2				143
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	384	654	0	0	504	329	9	1	2	163	0	403
Shared Lane Traffic (%)												
Lane Group Flow (vph)	384	654	0	0	833	0	0	12	0	0	163	403
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 1 Plus Project With Improvement (EAGCp1) AM Peak Hour 10 Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.61	0.31			0.68			0.03			0.42	0.44
Control Delay	40.8	10.8			25.1			23.2			24.5	6.1
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	40.8	10.8			25.1			23.2			24.5	6.1
LOS	D	B			C			C			C	A
Approach Delay		21.9			25.1			23.3			11.4	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 20.5

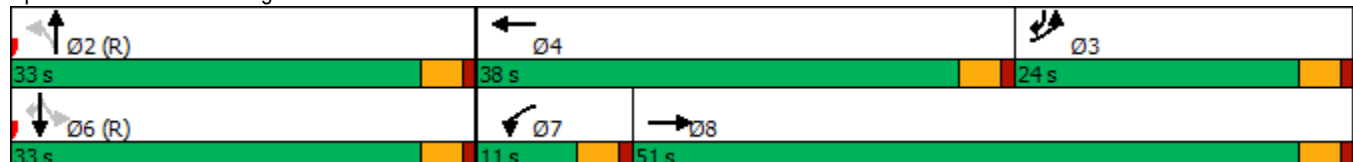
Intersection LOS: C

Intersection Capacity Utilization 70.8%

ICU Level of Service C

Analysis Period (min) 15

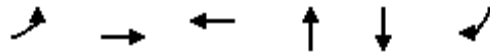
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/29/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	384	654	833	12	163	403
v/c Ratio	0.61	0.31	0.68	0.03	0.42	0.44
Control Delay	40.8	10.8	25.1	23.2	24.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	10.8	25.1	23.2	24.5	6.1
Queue Length 50th (ft)	111	99	181	4	85	19
Queue Length 95th (ft)	158	132	249	18	141	68
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1223	430	390	917
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.31	0.68	0.03	0.42	0.44
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	628	0	0	484	316	9	1	2	156	0	387
Future Volume (veh/h)	369	628	0	0	484	316	9	1	2	156	0	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	384	654	0	0	504	329	9	1	2	162	0	403
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	410	1866	0	2	684	445	279	34	50	563	0	729
Arrive On Green	0.12	0.52	0.00	0.00	0.33	0.33	0.34	0.34	0.34	0.34	0.00	0.34
Sat Flow, veh/h	3510	3705	0	1810	2095	1364	635	103	147	1452	0	1610
Grp Volume(v), veh/h	384	654	0	0	434	399	12	0	0	162	0	403
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1654	885	0	0	1452	0	1610
Q Serve(g_s), s	10.3	10.2	0.0	0.0	20.3	20.3	0.1	0.0	0.0	0.0	0.0	6.3
Cycle Q Clear(g_c), s	10.3	10.2	0.0	0.0	20.3	20.3	7.7	0.0	0.0	7.6	0.0	6.3
Prop In Lane	1.00		0.00	1.00		0.82	0.75		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	410	1866	0	2	589	540	363	0	0	563	0	729
V/C Ratio(X)	0.94	0.35	0.00	0.00	0.74	0.74	0.03	0.00	0.00	0.29	0.00	0.55
Avail Cap(c_a), veh/h	628	1866	0	76	589	540	363	0	0	563	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.93	0.00	0.93
Uniform Delay (d), s/veh	41.6	13.5	0.0	0.0	28.4	28.4	21.4	0.0	0.0	23.5	0.0	19.0
Incr Delay (d2), s/veh	16.1	0.5	0.0	0.0	8.0	8.8	0.2	0.0	0.0	1.2	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	4.1	0.0	0.0	9.8	9.1	0.2	0.0	0.0	2.8	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.7	14.1	0.0	0.0	36.4	37.2	21.5	0.0	0.0	24.7	0.0	21.8
LnGrp LOS	E	B	A	A	D	D	C	A	A	C	A	C
Approach Vol, veh/h	1038			833			12			565		
Approach Delay, s/veh	30.2			36.8			21.5			22.6		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	38.9		18.1	38.0		38.9	0.0	56.1				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		20.0	34.0		29.0	7.0	47.0				
Max Q Clear Time (g_c+I1), s	10.7		13.3	23.3		10.6	0.0	13.2				
Green Ext Time (p_c), s	0.0		0.8	4.0		2.3	0.0	5.1				
Intersection Summary												
HCM 6th Ctrl Delay			30.6									
HCM 6th LOS			C									
Notes												

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/29/2021

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	67	737	87	85	477
Future Volume (vph)	113	67	737	87	85	477
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.238	
Satd. Flow (perm)	1805	1615	1900	1615	452	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		71		92		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	119	71	776	92	89	502
Shared Lane Traffic (%)						
Lane Group Flow (vph)	119	71	776	92	89	502
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	26.0	26.0	65.0	65.0	65.0	65.0
Actuated g/C Ratio	0.25	0.25	0.62	0.62	0.62	0.62
v/c Ratio	0.27	0.16	0.66	0.09	0.32	0.43
Control Delay	33.8	8.4	9.3	0.4	13.4	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	8.4	9.3	0.4	13.4	11.7
LOS	C	A	A	A	B	B
Approach Delay	24.3		8.4			12.0
Approach LOS	C		A			B

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 11.5

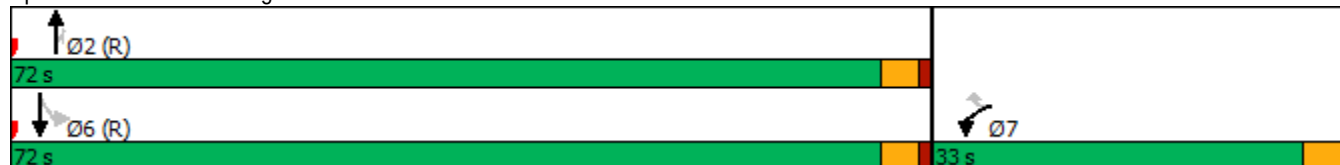
Intersection LOS: B

Intersection Capacity Utilization 68.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	119	71	776	92	89	502
v/c Ratio	0.27	0.16	0.66	0.09	0.32	0.43
Control Delay	33.8	8.4	9.3	0.4	13.4	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	8.4	9.3	0.4	13.4	11.7
Queue Length 50th (ft)	65	0	173	0	26	161
Queue Length 95th (ft)	115	35	m169	m0	60	231
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	453	1176	1034	279	1176
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.16	0.66	0.09	0.32	0.43

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/29/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	113	67	737	87	85	477
Future Volume (veh/h)	113	67	737	87	85	477
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	119	71	776	92	89	502
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	448	399	1176	997	299	1176
Arrive On Green	0.25	0.25	0.62	0.62	0.62	0.62
Sat Flow, veh/h	1810	1610	1900	1610	648	1900
Grp Volume(v), veh/h	119	71	776	92	89	502
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	648	1900
Q Serve(g_s), s	5.6	3.6	27.6	2.4	10.8	14.4
Cycle Q Clear(g_c), s	5.6	3.6	27.6	2.4	38.4	14.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	448	399	1176	997	299	1176
V/C Ratio(X)	0.27	0.18	0.66	0.09	0.30	0.43
Avail Cap(c_a), veh/h	448	399	1176	997	299	1176
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.53	0.53	0.92	0.92
Uniform Delay (d), s/veh	31.8	31.1	12.9	8.1	25.2	10.4
Incr Delay (d2), s/veh	1.4	1.0	1.6	0.1	2.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	1.5	10.4	0.8	1.8	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.3	32.1	14.4	8.2	27.6	11.4
LnGrp LOS	C	C	B	A	C	B
Approach Vol, veh/h	190		868			591
Approach Delay, s/veh	32.8		13.8			13.8
Approach LOS	C		B			B
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	72.0		33.0		72.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	30.6		8.6		41.4	
Green Ext Time (p_c), s	6.1		0.5		3.9	
Intersection Summary						
HCM 6th Ctrl Delay			16.0			
HCM 6th LOS			B			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	611	603	3	0	609	211	1	0	2	219	0	387
Future Volume (vph)	611	603	3	0	609	211	1	0	2	219	0	387
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.961			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3469	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.948			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3469	0	0	1639	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			47			94				56
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	679	670	3	0	677	234	1	0	2	243	0	430
Shared Lane Traffic (%)												
Lane Group Flow (vph)	679	673	0	0	911	0	0	3	0	0	243	430
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 1 Plus Project With Improvement (EAGC1p) PM Peak Hour 10 Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.78	0.30			0.84			0.01			0.68	0.46
Control Delay	44.3	9.8			40.4			0.0			42.0	9.9
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	44.3	9.8			40.4			0.0			42.0	9.9
LOS	D	A			D			A			D	A
Approach Delay		27.1			40.4						21.5	
Approach LOS		C			D						C	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 29.9

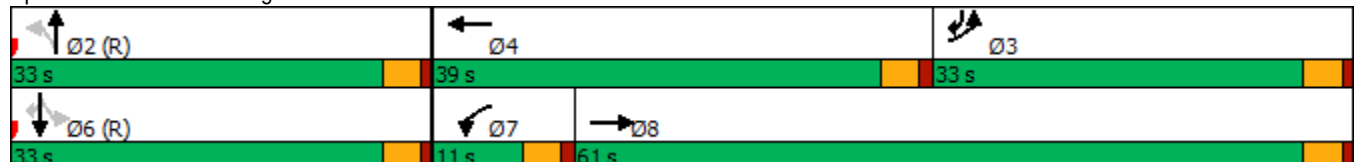
Intersection LOS: C

Intersection Capacity Utilization 77.3%

ICU Level of Service D

Analysis Period (min) 15

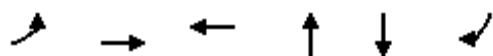
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/29/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	679	673	911	3	243	430
v/c Ratio	0.78	0.30	0.84	0.01	0.68	0.46
Control Delay	44.3	9.8	40.4	0.0	42.0	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	9.8	40.4	0.0	42.0	9.9
Queue Length 50th (ft)	220	102	285	0	155	92
Queue Length 95th (ft)	287	134	366	0	243	130
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1089	476	355	932
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.30	0.84	0.01	0.68	0.46
Intersection Summary						

HCM 6th Signalized Intersection Summary 5: Agua Mansa Rd & Market St

11/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	611	603	3	0	609	211	1	0	2	219	0	387
Future Volume (veh/h)	611	603	3	0	609	211	1	0	2	219	0	387
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	679	670	3	0	677	234	1	0	2	243	0	430
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	719	2123	10	2	802	277	46	22	43	259	0	797
Arrive On Green	0.20	0.58	0.58	0.00	0.30	0.30	0.29	0.00	0.29	0.29	0.00	0.29
Sat Flow, veh/h	3510	3686	17	1810	2632	909	0	74	148	654	0	1610
Grp Volume(v), veh/h	679	328	345	0	464	447	3	0	0	243	0	430
Grp Sat Flow(s),veh/h/ln	1755	1805	1897	1810	1805	1736	222	0	0	654	0	1610
Q Serve(g_s), s	20.0	9.9	9.9	0.0	25.3	25.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	20.0	9.9	9.9	0.0	25.3	25.3	30.5	0.0	0.0	30.5	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.52	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	719	1040	1093	2	550	529	110	0	0	259	0	797
V/C Ratio(X)	0.94	0.32	0.32	0.00	0.84	0.84	0.03	0.00	0.00	0.94	0.00	0.54
Avail Cap(c_a), veh/h	869	1040	1093	69	550	529	110	0	0	259	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.92	0.00	0.92
Uniform Delay (d), s/veh	41.2	11.5	11.5	0.0	34.2	34.2	29.8	0.0	0.0	40.6	0.0	18.2
Incr Delay (d2), s/veh	16.8	0.8	0.8	0.0	14.6	15.2	0.5	0.0	0.0	40.1	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	4.0	4.2	0.0	13.1	12.7	0.1	0.0	0.0	9.3	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.0	12.3	12.3	0.0	48.8	49.3	30.3	0.0	0.0	80.7	0.0	20.7
LnGrp LOS	E	B	B	A	D	D	C	A	A	F	A	C
Approach Vol, veh/h	1352			911			3			673		
Approach Delay, s/veh	35.3			49.1			30.3			42.3		
Approach LOS	D			D			C			D		
Timer - Assigned Phs	2			3			4			6		
Phs Duration (G+Y+Rc), s	37.5			28.5			39.0			37.5		
Change Period (Y+Rc), s	4.0			4.0			4.0			4.0		
Max Green Setting (Gmax), s	29.0			29.0			35.0			29.0		
Max Q Clear Time (g_c+I1), s	33.5			23.0			28.3			33.5		
Green Ext Time (p_c), s	0.0			1.5			3.2			0.0		
Intersection Summary												
HCM 6th Ctrl Delay			41.1									
HCM 6th LOS			D									
Notes												

**OPENING YEAR (2031) WITHOUT PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	12	636	56	9	509
Future Volume (vph)	32	12	636	56	9	509
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.360	
Satd. Flow (perm)	1805	1615	1900	1615	684	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		14		66		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	38	14	748	66	11	599
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	14	748	66	11	599
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	4.9	4.9	83.3	83.3	83.3	83.3
Actuated g/C Ratio	0.05	0.05	0.88	0.88	0.88	0.88
v/c Ratio	0.40	0.14	0.45	0.05	0.02	0.36
Control Delay	56.0	23.6	3.1	0.1	2.2	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	23.6	3.1	0.1	2.2	2.9
LOS	E	C	A	A	A	A
Approach Delay	47.2		2.8			2.9
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 4.4

Intersection LOS: A

Intersection Capacity Utilization 51.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	38	14	748	66	11	599
v/c Ratio	0.40	0.14	0.45	0.05	0.02	0.36
Control Delay	56.0	23.6	3.1	0.1	2.2	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	23.6	3.1	0.1	2.2	2.9
Queue Length 50th (ft)	23	0	111	0	1	76
Queue Length 95th (ft)	51	17	104	m0	4	120
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	469	1665	1423	599	1665
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.03	0.45	0.05	0.02	0.36

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	32	12	636	56	9	509
Future Volume (veh/h)	32	12	636	56	9	509
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	38	14	748	66	11	599
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	42	38	1575	1335	565	1575
Arrive On Green	0.02	0.02	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1810	1610	1900	1610	681	1900
Grp Volume(v), veh/h	38	14	748	66	11	599
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	681	1900
Q Serve(g_s), s	2.0	0.8	10.5	0.7	0.4	7.5
Cycle Q Clear(g_c), s	2.0	0.8	10.5	0.7	11.0	7.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	42	38	1575	1335	565	1575
V/C Ratio(X)	0.90	0.37	0.47	0.05	0.02	0.38
Avail Cap(c_a), veh/h	514	458	1575	1335	565	1575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.72	0.72	0.95	0.95
Uniform Delay (d), s/veh	46.3	45.7	2.3	1.4	3.8	2.0
Incr Delay (d2), s/veh	41.9	6.0	0.7	0.1	0.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.4	1.5	0.1	0.1	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	88.1	51.7	3.0	1.5	3.9	2.7
LnGrp LOS	F	D	A	A	A	A
Approach Vol, veh/h	52		814			610
Approach Delay, s/veh	78.3		2.9			2.7
Approach LOS	E		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	85.8		9.2		85.8	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	13.5		5.0		14.0	
Green Ext Time (p_c), s	5.8		0.1		4.1	
Intersection Summary						
HCM 6th Ctrl Delay			5.5			
HCM 6th LOS			A			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	396	694	0	0	534	338	10	1	2	161	0	405
Future Volume (vph)	396	694	0	0	534	338	10	1	2	161	0	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.942			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3401	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.834			0.749	
Satd. Flow (perm)	3502	3610	0	1900	3401	0	0	1551	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					157			2				114
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	413	723	0	0	556	352	10	1	2	168	0	422
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	723	0	0	908	0	0	13	0	0	168	422
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 2 With Improvement (EAGC2) AM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.66	0.35			0.75			0.03			0.43	0.47
Control Delay	42.1	11.1			27.8			23.4			31.3	10.5
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	42.1	11.1			27.8			23.4			31.3	10.5
LOS	D	B			C			C			C	B
Approach Delay		22.4			27.8			23.4			16.4	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 22.9

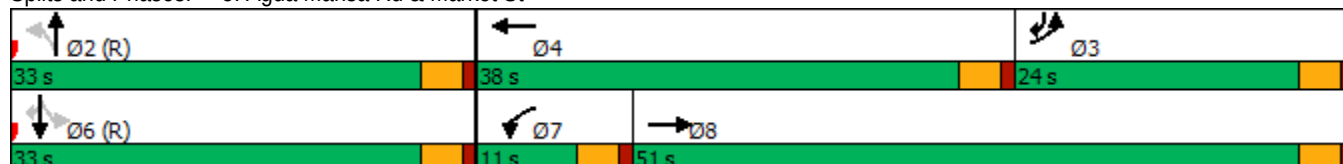
Intersection LOS: C

Intersection Capacity Utilization 74.0%

ICU Level of Service D

Analysis Period (min) 15

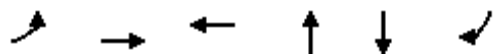
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	413	723	908	13	168	422
v/c Ratio	0.66	0.35	0.75	0.03	0.43	0.47
Control Delay	42.1	11.1	27.8	23.4	31.3	10.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.1	11.1	27.8	23.4	31.3	10.5
Queue Length 50th (ft)	120	112	212	5	85	117
Queue Length 95th (ft)	170	148	287	19	148	196
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1215	425	389	904
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.35	0.75	0.03	0.43	0.47
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	396	694	0	0	534	338	10	1	2	161	0	405
Future Volume (veh/h)	396	694	0	0	534	338	10	1	2	161	0	405
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	412	723	0	0	556	352	10	1	2	168	0	422
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	438	1895	0	2	692	438	271	30	43	554	0	729
Arrive On Green	0.12	0.52	0.00	0.00	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.33
Sat Flow, veh/h	3510	3705	0	1810	2121	1342	622	92	130	1458	0	1610
Grp Volume(v), veh/h	412	723	0	0	473	435	13	0	0	168	0	422
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1658	845	0	0	1458	0	1610
Q Serve(g_s), s	11.1	11.3	0.0	0.0	22.7	22.8	0.1	0.0	0.0	0.0	0.0	6.6
Cycle Q Clear(g_c), s	11.1	11.3	0.0	0.0	22.7	22.8	8.0	0.0	0.0	7.9	0.0	6.6
Prop In Lane	1.00		0.00	1.00		0.81	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	438	1895	0	2	589	541	344	0	0	554	0	729
V/C Ratio(X)	0.94	0.38	0.00	0.00	0.80	0.80	0.04	0.00	0.00	0.30	0.00	0.58
Avail Cap(c_a), veh/h	628	1895	0	76	589	541	344	0	0	554	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.94	0.00	0.94
Uniform Delay (d), s/veh	41.2	13.4	0.0	0.0	29.2	29.2	21.9	0.0	0.0	24.1	0.0	19.3
Incr Delay (d2), s/veh	17.9	0.6	0.0	0.0	11.1	12.0	0.2	0.0	0.0	1.3	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	4.5	0.0	0.0	11.4	10.6	0.2	0.0	0.0	3.0	0.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.1	14.0	0.0	0.0	40.3	41.2	22.1	0.0	0.0	25.5	0.0	22.4
LnGrp LOS	E	B	A	A	D	D	C	A	A	C	A	C
Approach Vol, veh/h	1135			908			13			590		
Approach Delay, s/veh	30.4			40.7			22.1			23.3		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	38.1		18.9	38.0		38.1	0.0	56.9				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		20.0	34.0		29.0	7.0	47.0				
Max Q Clear Time (g_c+I1), s	11.0		14.1	25.8		10.9	0.0	14.3				
Green Ext Time (p_c), s	0.0		0.8	3.7		2.4	0.0	5.7				
Intersection Summary												
HCM 6th Ctrl Delay			32.3									
HCM 6th LOS			C									
Notes												

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/22/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	57	26	848	27	10	588
Future Volume (vph)	57	26	848	27	10	588
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.289	
Satd. Flow (perm)	1805	1615	1900	1615	549	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		27		28		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	60	27	893	28	11	619
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	27	893	28	11	619
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	6.2	6.2	88.4	88.4	88.4	88.4
Actuated g/C Ratio	0.06	0.06	0.84	0.84	0.84	0.84
v/c Ratio	0.57	0.23	0.56	0.02	0.02	0.39
Control Delay	68.1	21.2	6.6	0.0	2.5	3.6
Queue Delay	0.0	0.0	0.8	0.0	0.0	0.0
Total Delay	68.1	21.2	7.4	0.0	2.5	3.6
LOS	E	C	A	A	A	A
Approach Delay	53.5		7.2			3.6
Approach LOS	D		A			A

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 8.2

Intersection LOS: A

Intersection Capacity Utilization 62.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/22/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	60	27	893	28	11	619
v/c Ratio	0.57	0.23	0.56	0.02	0.02	0.39
Control Delay	68.1	21.2	6.6	0.0	2.5	3.6
Queue Delay	0.0	0.0	0.8	0.0	0.0	0.0
Total Delay	68.1	21.2	7.4	0.0	2.5	3.6
Queue Length 50th (ft)	40	0	216	0	1	89
Queue Length 95th (ft)	82	27	m227	m0	5	156
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	420	1600	1364	462	1600
Starvation Cap Reductn	0	0	378	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.06	0.73	0.02	0.02	0.39

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/22/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	57	26	848	27	10	588
Future Volume (veh/h)	57	26	848	27	10	588
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	60	27	893	28	11	619
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	59	53	1584	1343	492	1584
Arrive On Green	0.03	0.03	0.83	0.83	0.83	0.83
Sat Flow, veh/h	1810	1610	1900	1610	616	1900
Grp Volume(v), veh/h	60	27	893	28	11	619
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	616	1900
Q Serve(g_s), s	3.4	1.7	15.5	0.3	0.6	8.4
Cycle Q Clear(g_c), s	3.4	1.7	15.5	0.3	16.1	8.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	59	53	1584	1343	492	1584
V/C Ratio(X)	1.01	0.51	0.56	0.02	0.02	0.39
Avail Cap(c_a), veh/h	448	399	1584	1343	492	1584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.44	0.44	0.91	0.91
Uniform Delay (d), s/veh	50.8	49.9	2.7	1.5	5.3	2.1
Incr Delay (d2), s/veh	56.9	7.4	0.6	0.0	0.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.8	2.4	0.0	0.1	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	107.7	57.4	3.4	1.5	5.3	2.8
LnGrp LOS	F	E	A	A	A	A
Approach Vol, veh/h	87		921			630
Approach Delay, s/veh	92.1		3.3			2.9
Approach LOS	F		A			A
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	94.6		10.4		94.6	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	18.5		6.4		19.1	
Green Ext Time (p_c), s	7.7		0.2		4.3	
Intersection Summary						
HCM 6th Ctrl Delay			7.9			
HCM 6th LOS			A			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	653	666	4	0	673	223	1	0	2	229	0	413
Future Volume (vph)	653	666	4	0	673	223	1	0	2	229	0	413
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.963			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3476	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.947			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3476	0	0	1637	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			44			94				52
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	726	740	4	0	748	248	1	0	2	254	0	459
Shared Lane Traffic (%)												
Lane Group Flow (vph)	726	744	0	0	996	0	0	3	0	0	254	459
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 2 With Improvement (EAGC2) PM Peak Hour
Ganddini Group, Inc.

Synchro 10 Report
Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/22/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.84	0.33			0.91			0.01			0.72	0.49
Control Delay	47.5	10.1			47.4			0.0			47.9	13.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	47.5	10.1			47.4			0.0			47.9	13.2
LOS	D	B			D			A			D	B
Approach Delay		28.6			47.4						25.6	
Approach LOS		C			D						C	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 33.8

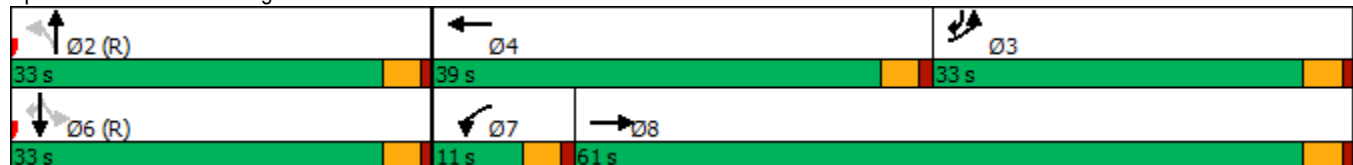
Intersection LOS: C

Intersection Capacity Utilization 81.2%

ICU Level of Service D

Analysis Period (min) 15

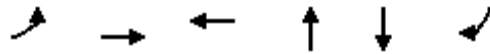
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/22/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	726	744	996	3	254	459
v/c Ratio	0.84	0.33	0.91	0.01	0.72	0.49
Control Delay	47.5	10.1	47.4	0.0	47.9	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	10.1	47.4	0.0	47.9	13.2
Queue Length 50th (ft)	239	116	325	0	160	174
Queue Length 95th (ft)	#327	150	#451	0	#269	106
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1089	476	355	930
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.33	0.91	0.01	0.72	0.49

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/22/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	653	666	4	0	673	223	1	0	2	229	0	413
Future Volume (veh/h)	653	666	4	0	673	223	1	0	2	229	0	413
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	726	740	4	0	748	248	1	0	2	254	0	459
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	761	2165	12	2	812	269	46	21	43	252	0	797
Arrive On Green	0.22	0.59	0.59	0.00	0.30	0.30	0.28	0.00	0.28	0.28	0.00	0.28
Sat Flow, veh/h	3510	3682	20	1810	2663	883	0	77	154	658	0	1610
Grp Volume(v), veh/h	726	363	381	0	507	489	3	0	0	254	0	459
Grp Sat Flow(s),veh/h/ln	1755	1805	1896	1810	1805	1741	231	0	0	658	0	1610
Q Serve(g_s), s	21.4	10.9	10.9	0.0	28.5	28.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	21.4	10.9	10.9	0.0	28.5	28.5	29.2	0.0	0.0	29.2	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.51	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	761	1062	1115	2	550	531	110	0	0	252	0	797
V/C Ratio(X)	0.95	0.34	0.34	0.00	0.92	0.92	0.03	0.00	0.00	1.01	0.00	0.58
Avail Cap(c_a), veh/h	869	1062	1115	69	550	531	110	0	0	252	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.92	0.00	0.92
Uniform Delay (d), s/veh	40.6	11.1	11.1	0.0	35.3	35.3	30.4	0.0	0.0	41.9	0.0	18.7
Incr Delay (d2), s/veh	19.0	0.9	0.8	0.0	23.2	23.8	0.5	0.0	0.0	56.7	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	4.4	4.6	0.0	15.8	15.3	0.1	0.0	0.0	10.6	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.7	12.0	12.0	0.0	58.5	59.1	30.9	0.0	0.0	98.5	0.0	21.5
LnGrp LOS	E	B	B	A	E	E	C	A	A	F	A	C
Approach Vol, veh/h	1470			996			3			713		
Approach Delay, s/veh	35.5			58.8			30.9			48.9		
Approach LOS	D			E			C			D		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	36.2		29.8	39.0		36.2	0.0	68.8				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		29.0	35.0		29.0	7.0	57.0				
Max Q Clear Time (g_c+I1), s	32.2		24.4	31.5		32.2	0.0	13.9				
Green Ext Time (p_c), s	0.0		1.3	2.0		0.0	0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay			45.8									
HCM 6th LOS			D									
Notes												

**OPENING YEAR (2031) WITH PROJECT
WITH IMPROVEMENTS**

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/29/2021

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	113	37	565	139	31	456
Future Volume (vph)	113	37	565	139	31	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.282	
Satd. Flow (perm)	1805	1615	1900	1615	536	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		44		164		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	133	44	665	164	36	536
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	44	665	164	36	536
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	34.0	34.0	61.0	61.0	61.0	61.0
Total Split (%)	35.8%	35.8%	64.2%	64.2%	64.2%	64.2%
Maximum Green (s)	30.0	30.0	57.0	57.0	57.0	57.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	27.0	27.0	54.0	54.0	54.0	54.0
Actuated g/C Ratio	0.28	0.28	0.57	0.57	0.57	0.57
v/c Ratio	0.26	0.09	0.62	0.17	0.12	0.50
Control Delay	28.0	8.4	10.4	1.6	10.8	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	8.4	10.4	1.6	10.8	14.3
LOS	C	A	B	A	B	B
Approach Delay	23.1		8.7			14.1
Approach LOS	C		A			B

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 34 (36%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 12.3

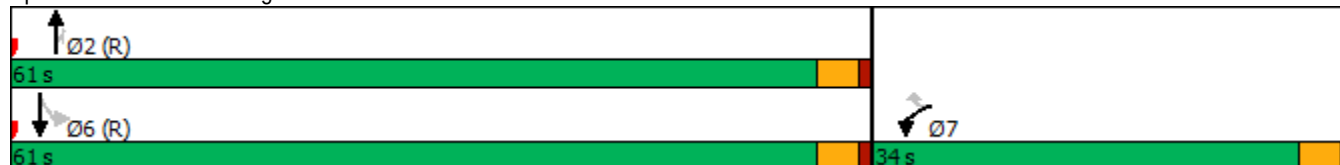
Intersection LOS: B

Intersection Capacity Utilization 47.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	44	665	164	36	536
v/c Ratio	0.26	0.09	0.62	0.17	0.12	0.50
Control Delay	28.0	8.4	10.4	1.6	10.8	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	8.4	10.4	1.6	10.8	14.3
Queue Length 50th (ft)	62	0	179	11	9	182
Queue Length 95th (ft)	104	22	224	m15	24	243
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	513	490	1080	988	304	1080
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.09	0.62	0.17	0.12	0.50

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/29/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	113	37	565	139	31	456
Future Volume (veh/h)	113	37	565	139	31	456
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	133	44	665	164	36	536
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	514	458	1080	915	302	1080
Arrive On Green	0.28	0.28	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1810	1610	1900	1610	672	1900
Grp Volume(v), veh/h	133	44	665	164	36	536
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	672	1900
Q Serve(g_s), s	5.4	1.9	22.1	4.6	3.6	16.1
Cycle Q Clear(g_c), s	5.4	1.9	22.1	4.6	25.6	16.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	514	458	1080	915	302	1080
V/C Ratio(X)	0.26	0.10	0.62	0.18	0.12	0.50
Avail Cap(c_a), veh/h	514	458	1080	915	302	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.71	0.71	0.96	0.96
Uniform Delay (d), s/veh	26.3	25.0	13.6	9.9	22.1	12.3
Incr Delay (d2), s/veh	1.2	0.4	1.9	0.3	0.8	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.8	8.6	1.5	0.6	6.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.5	25.4	15.5	10.2	22.9	13.9
LnGrp LOS	C	C	B	B	C	B
Approach Vol, veh/h	177		829			572
Approach Delay, s/veh	27.0		14.4			14.5
Approach LOS	C		B			B
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	61.0		34.0		61.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	57.0		30.0		57.0	
Max Q Clear Time (g_c+I1), s	25.1		8.4		28.6	
Green Ext Time (p_c), s	5.1		0.5		3.6	
Intersection Summary						
HCM 6th Ctrl Delay			15.8			
HCM 6th LOS			B			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	404	694	0	0	534	342	10	1	2	171	0	423
Future Volume (vph)	404	694	0	0	534	342	10	1	2	171	0	423
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.941			0.979				0.850
Flt Protected	0.950							0.963			0.950	
Satd. Flow (prot)	3502	3610	0	1900	3397	0	0	1791	0	0	1805	1615
Flt Permitted	0.950							0.832			0.749	
Satd. Flow (perm)	3502	3610	0	1900	3397	0	0	1548	0	0	1423	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					161			2				114
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		554			1220			186			858	
Travel Time (s)		12.6			27.7			4.2			19.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	421	723	0	0	556	356	10	1	2	178	0	441
Shared Lane Traffic (%)												
Lane Group Flow (vph)	421	723	0	0	912	0	0	13	0	0	178	441
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Riverside Hauling Yard (Agua MansaWilson) Project Opening Year 2 Pls Project With Improvement (EAGCp2) AM Peak 10 Report
Ganddini Group, Inc. Page 5

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	24.0	51.0		11.0	38.0		33.0	33.0		33.0	33.0	24.0
Total Split (%)	25.3%	53.7%		11.6%	40.0%		34.7%	34.7%		34.7%	34.7%	25.3%
Maximum Green (s)	20.0	47.0		7.0	34.0		29.0	29.0		29.0	29.0	20.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	17.0	55.0			31.0			26.0			26.0	50.0
Actuated g/C Ratio	0.18	0.58			0.33			0.27			0.27	0.53
v/c Ratio	0.67	0.35			0.75			0.03			0.46	0.49
Control Delay	42.4	11.1			27.8			23.4			25.8	8.0
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	42.4	11.1			27.8			23.4			25.8	8.0
LOS	D	B			C			C			C	A
Approach Delay		22.6			27.8			23.4			13.1	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type: Other

Cycle Length: 95

Actuated Cycle Length: 95

Offset: 64 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 22.2

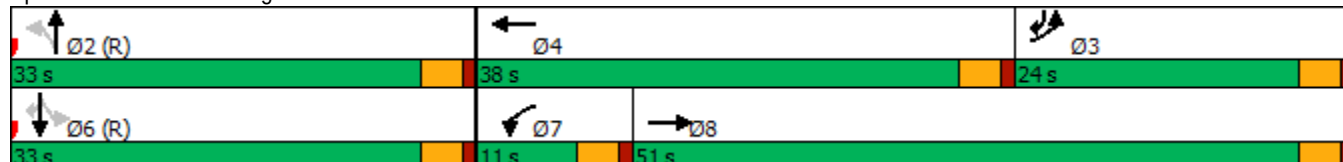
Intersection LOS: C

Intersection Capacity Utilization 75.2%

ICU Level of Service D

Analysis Period (min) 15

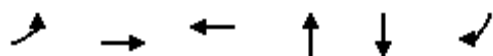
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/29/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	421	723	912	13	178	441
v/c Ratio	0.67	0.35	0.75	0.03	0.46	0.49
Control Delay	42.4	11.1	27.8	23.4	25.8	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	11.1	27.8	23.4	25.8	8.0
Queue Length 50th (ft)	123	112	212	5	88	23
Queue Length 95th (ft)	174	148	287	19	144	96
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	626	2090	1216	425	389	904
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.35	0.75	0.03	0.46	0.49
Intersection Summary						

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	404	694	0	0	534	342	10	1	2	171	0	423
Future Volume (veh/h)	404	694	0	0	534	342	10	1	2	171	0	423
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	421	723	0	0	556	356	10	1	2	178	0	441
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	447	1904	0	2	689	441	260	29	40	549	0	729
Arrive On Green	0.13	0.53	0.00	0.00	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.33
Sat Flow, veh/h	3510	3705	0	1810	2111	1351	594	90	124	1456	0	1610
Grp Volume(v), veh/h	421	723	0	0	475	437	13	0	0	178	0	441
Grp Sat Flow(s),veh/h/ln	1755	1805	0	1810	1805	1657	808	0	0	1456	0	1610
Q Serve(g_s), s	11.3	11.2	0.0	0.0	22.9	22.9	0.1	0.0	0.0	0.0	0.0	7.5
Cycle Q Clear(g_c), s	11.3	11.2	0.0	0.0	22.9	22.9	8.7	0.0	0.0	8.6	0.0	7.5
Prop In Lane	1.00		0.00	1.00		0.82	0.77		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	447	1904	0	2	589	541	330	0	0	549	0	729
V/C Ratio(X)	0.94	0.38	0.00	0.00	0.81	0.81	0.04	0.00	0.00	0.32	0.00	0.61
Avail Cap(c_a), veh/h	628	1904	0	76	589	541	330	0	0	549	0	729
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	0.89	0.00	0.89
Uniform Delay (d), s/veh	41.1	13.3	0.0	0.0	29.3	29.3	22.1	0.0	0.0	24.5	0.0	19.6
Incr Delay (d2), s/veh	18.4	0.6	0.0	0.0	11.3	12.2	0.2	0.0	0.0	1.4	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	4.5	0.0	0.0	11.5	10.7	0.2	0.0	0.0	3.2	0.0	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.5	13.8	0.0	0.0	40.6	41.5	22.3	0.0	0.0	25.9	0.0	22.9
LnGrp LOS	E	B	A	A	D	D	C	A	A	C	A	C
Approach Vol, veh/h	1144			912			13			619		
Approach Delay, s/veh	30.7			41.0			22.3			23.8		
Approach LOS	C			D			C			C		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	37.9		19.1	38.0		37.9	0.0	57.1				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		20.0	34.0		29.0	7.0	47.0				
Max Q Clear Time (g_c+I1), s	11.7		14.3	25.9		11.6	0.0	14.2				
Green Ext Time (p_c), s	0.0		0.8	3.7		2.5	0.0	5.7				
Intersection Summary												
HCM 6th Ctrl Delay			32.6									
HCM 6th LOS			C									
Notes												

PM PEAK HOUR

Lanes, Volumes, Timings
1: Agua Mansa Rd & Wilson St

11/29/2021

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	110	81	782	119	61	551
Future Volume (vph)	110	81	782	119	61	551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	160	0		0	150	
Storage Lanes	1	1		1	1	
Taper Length (ft)	0				0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850		0.850		
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1805	1615	1900	1615	1805	1900
Flt Permitted	0.950				0.210	
Satd. Flow (perm)	1805	1615	1900	1615	399	1900
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		85		125		
Link Speed (mph)	25		45			45
Link Distance (ft)	905		858			886
Travel Time (s)	24.7		13.0			13.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	116	85	823	125	64	580
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	85	823	125	64	580
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane	Yes					Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2	1	1	2
Detector Template	Left	Right	Thru	Right	Left	Thru
Leading Detector (ft)	20	20	100	20	20	100
Trailing Detector (ft)	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	6	20	20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	7		2			6
Permitted Phases		7		2	6	

Lanes, Volumes, Timings

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Detector Phase	7	7	2	2	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	33.0	33.0	11.0	11.0	11.0	11.0
Total Split (s)	33.0	33.0	72.0	72.0	72.0	72.0
Total Split (%)	31.4%	31.4%	68.6%	68.6%	68.6%	68.6%
Maximum Green (s)	29.0	29.0	68.0	68.0	68.0	68.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0	3.0	3.0	3.0	3.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	Max	C-Max	C-Max	C-Max	C-Max
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	22.0	22.0				
Pedestrian Calls (#/hr)	0	0				
Act Effect Green (s)	26.0	26.0	65.0	65.0	65.0	65.0
Actuated g/C Ratio	0.25	0.25	0.62	0.62	0.62	0.62
v/c Ratio	0.26	0.18	0.70	0.12	0.26	0.49
Control Delay	33.7	7.9	9.3	0.3	12.5	12.8
Queue Delay	0.0	0.0	0.7	0.0	0.0	0.0
Total Delay	33.7	7.9	10.0	0.3	12.5	12.8
LOS	C	A	B	A	B	B
Approach Delay	22.8		8.7			12.7
Approach LOS	C		A			B

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 34 (32%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 11.7

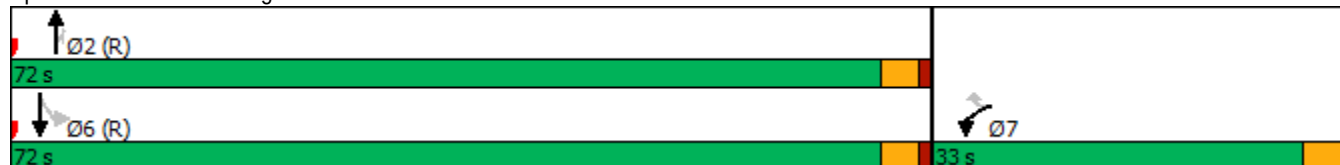
Intersection LOS: B

Intersection Capacity Utilization 68.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 1: Agua Mansa Rd & Wilson St



Queues

1: Agua Mansa Rd & Wilson St

11/29/2021



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	116	85	823	125	64	580
v/c Ratio	0.26	0.18	0.70	0.12	0.26	0.49
Control Delay	33.7	7.9	9.3	0.3	12.5	12.8
Queue Delay	0.0	0.0	0.7	0.0	0.0	0.0
Total Delay	33.7	7.9	10.0	0.3	12.5	12.8
Queue Length 50th (ft)	63	0	167	0	18	197
Queue Length 95th (ft)	113	38	m171	m0	44	281
Internal Link Dist (ft)	825		778			806
Turn Bay Length (ft)	160				150	
Base Capacity (vph)	446	463	1176	1047	247	1176
Starvation Cap Reductn	0	0	114	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.18	0.77	0.12	0.26	0.49

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM 6th Signalized Intersection Summary

1: Agua Mansa Rd & Wilson St

11/29/2021

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	81	782	119	61	551
Future Volume (veh/h)	110	81	782	119	61	551
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	116	85	823	125	64	580
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0
Cap, veh/h	448	399	1176	997	266	1176
Arrive On Green	0.25	0.25	0.62	0.62	0.62	0.62
Sat Flow, veh/h	1810	1610	1900	1610	601	1900
Grp Volume(v), veh/h	116	85	823	125	64	580
Grp Sat Flow(s),veh/h/ln	1810	1610	1900	1610	601	1900
Q Serve(g_s), s	5.4	4.4	30.6	3.4	8.4	17.6
Cycle Q Clear(g_c), s	5.4	4.4	30.6	3.4	39.0	17.6
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	448	399	1176	997	266	1176
V/C Ratio(X)	0.26	0.21	0.70	0.13	0.24	0.49
Avail Cap(c_a), veh/h	448	399	1176	997	266	1176
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.40	0.40	0.94	0.94
Uniform Delay (d), s/veh	31.8	31.4	13.4	8.3	26.5	11.0
Incr Delay (d2), s/veh	1.4	1.2	1.4	0.1	2.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	1.9	11.4	1.0	1.3	6.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	33.2	32.6	14.9	8.4	28.5	12.4
LnGrp LOS	C	C	B	A	C	B
Approach Vol, veh/h	201		948			644
Approach Delay, s/veh	32.9		14.0			14.0
Approach LOS	C		B			B
Timer - Assigned Phs	2		4		6	
Phs Duration (G+Y+Rc), s	72.0		33.0		72.0	
Change Period (Y+Rc), s	4.0		4.0		4.0	
Max Green Setting (Gmax), s	68.0		29.0		68.0	
Max Q Clear Time (g_c+I1), s	33.6		8.4		42.0	
Green Ext Time (p_c), s	6.8		0.6		4.3	
Intersection Summary						
HCM 6th Ctrl Delay			16.1			
HCM 6th LOS			B			

Lanes, Volumes, Timings
5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	670	666	4	0	673	232	1	0	2	235	0	423
Future Volume (vph)	670	666	4	0	673	232	1	0	2	235	0	423
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	50		0	0		0	0		0
Storage Lanes	2		0	1		0	0		0	0		1
Taper Length (ft)	25			80			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.962			0.910				0.850
Flt Protected	0.950							0.984			0.950	
Satd. Flow (prot)	3502	3606	0	1900	3473	0	0	1701	0	0	1805	1615
Flt Permitted	0.950							0.946			0.756	
Satd. Flow (perm)	3502	3606	0	1900	3473	0	0	1636	0	0	1436	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			47			94				52
Link Speed (mph)		30			30			30				30
Link Distance (ft)		554			1220			186				858
Travel Time (s)		12.6			27.7			4.2				19.5
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	744	740	4	0	748	258	1	0	2	261	0	470
Shared Lane Traffic (%)												
Lane Group Flow (vph)	744	744	0	0	1006	0	0	3	0	0	261	470
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	1
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	Right
Leading Detector (ft)	20	100		20	100		20	100		20	100	20
Trailing Detector (ft)	0	0		0	0		0	0		0	0	0
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	0
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	3	8		7	4			2			6	3
Permitted Phases							2			6		6

Lanes, Volumes, Timings

5: Agua Mansa Rd & Market St

11/29/2021

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	3	8		7	4		2	2		6	6	3
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	11.0	44.0		11.0	11.0		33.0	33.0		33.0	33.0	11.0
Total Split (s)	33.0	61.0		11.0	39.0		33.0	33.0		33.0	33.0	33.0
Total Split (%)	31.4%	58.1%		10.5%	37.1%		31.4%	31.4%		31.4%	31.4%	31.4%
Maximum Green (s)	29.0	57.0		7.0	35.0		29.0	29.0		29.0	29.0	29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Total Lost Time (s)	7.0	7.0		7.0	7.0			7.0			7.0	7.0
Lead/Lag	Lag	Lag		Lead	Lead							Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	Max		C-Max	C-Max		C-Max	C-Max	None
Walk Time (s)		7.0					7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		33.0					22.0	22.0		22.0	22.0	
Pedestrian Calls (#/hr)		0					0	0		0	0	
Act Effect Green (s)	26.0	65.0			32.0			26.0			26.0	59.0
Actuated g/C Ratio	0.25	0.62			0.30			0.25			0.25	0.56
v/c Ratio	0.86	0.33			0.92			0.01			0.74	0.51
Control Delay	49.1	10.1			48.2			0.0			43.4	10.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	49.1	10.1			48.2			0.0			43.4	10.2
LOS	D	B			D			A			D	B
Approach Delay		29.6			48.2						22.0	
Approach LOS		C			D						C	

Intersection Summary

Area Type: Other

Cycle Length: 105

Actuated Cycle Length: 105

Offset: 72 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 33.6

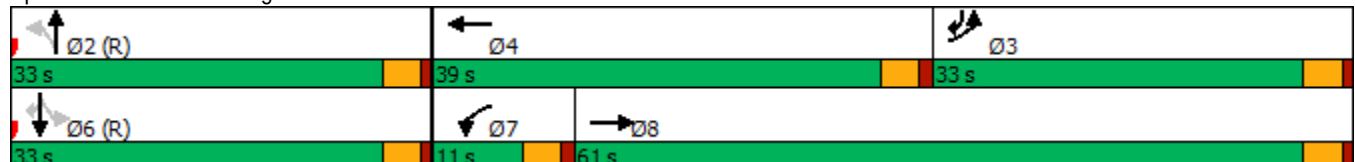
Intersection LOS: C

Intersection Capacity Utilization 82.3%

ICU Level of Service E

Analysis Period (min) 15

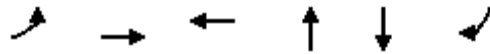
Splits and Phases: 5: Agua Mansa Rd & Market St



Queues

5: Agua Mansa Rd & Market St

11/29/2021



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	744	744	1006	3	261	470
v/c Ratio	0.86	0.33	0.92	0.01	0.74	0.51
Control Delay	49.1	10.1	48.2	0.0	43.4	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	10.1	48.2	0.0	43.4	10.2
Queue Length 50th (ft)	246	116	329	0	167	97
Queue Length 95th (ft)	#341	150	#457	0	#281	133
Internal Link Dist (ft)		474	1140	106	778	
Turn Bay Length (ft)						
Base Capacity (vph)	867	2232	1091	475	355	930
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.33	0.92	0.01	0.74	0.51

Intersection Summary

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

HCM 6th Signalized Intersection Summary

5: Agua Mansa Rd & Market St

11/29/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	670	666	4	0	673	232	1	0	2	235	0	423
Future Volume (veh/h)	670	666	4	0	673	232	1	0	2	235	0	423
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	744	740	4	0	748	258	1	0	2	261	0	470
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	776	2181	12	2	803	277	46	21	43	249	0	797
Arrive On Green	0.22	0.59	0.59	0.00	0.30	0.30	0.27	0.00	0.27	0.27	0.00	0.27
Sat Flow, veh/h	3510	3682	20	1810	2633	908	0	78	157	659	0	1610
Grp Volume(v), veh/h	744	363	381	0	513	493	3	0	0	261	0	470
Grp Sat Flow(s),veh/h/ln	1755	1805	1896	1810	1805	1737	235	0	0	659	0	1610
Q Serve(g_s), s	22.0	10.8	10.8	0.0	29.0	29.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	22.0	10.8	10.8	0.0	29.0	29.0	28.8	0.0	0.0	28.8	0.0	0.0
Prop In Lane	1.00		0.01	1.00		0.52	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	776	1070	1124	2	550	529	110	0	0	249	0	797
V/C Ratio(X)	0.96	0.34	0.34	0.00	0.93	0.93	0.03	0.00	0.00	1.05	0.00	0.59
Avail Cap(c_a), veh/h	869	1070	1124	69	550	529	110	0	0	249	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00	0.00	0.89	0.00	0.89
Uniform Delay (d), s/veh	40.4	10.9	10.9	0.0	35.4	35.4	30.6	0.0	0.0	42.1	0.0	18.9
Incr Delay (d2), s/veh	20.0	0.9	0.8	0.0	24.8	25.5	0.5	0.0	0.0	66.7	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.5	4.3	4.5	0.0	16.2	15.7	0.1	0.0	0.0	11.2	0.0	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	11.8	11.7	0.0	60.2	60.9	31.1	0.0	0.0	108.7	0.0	21.7
LnGrp LOS	E	B	B	A	E	E	C	A	A	F	A	C
Approach Vol, veh/h	1488			1006			3			731		
Approach Delay, s/veh	36.1			60.6			31.1			52.8		
Approach LOS	D			E			C			D		
Timer - Assigned Phs	2		3	4		6	7	8				
Phs Duration (G+Y+Rc), s	35.8		30.2	39.0		35.8	0.0	69.2				
Change Period (Y+Rc), s	4.0		4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s	29.0		29.0	35.0		29.0	7.0	57.0				
Max Q Clear Time (g_c+I1), s	31.8		25.0	32.0		31.8	0.0	13.8				
Green Ext Time (p_c), s	0.0		1.2	1.8		0.0	0.0	5.4				
Intersection Summary												
HCM 6th Ctrl Delay			47.5									
HCM 6th LOS			D									
Notes												

ATTACHMENT E

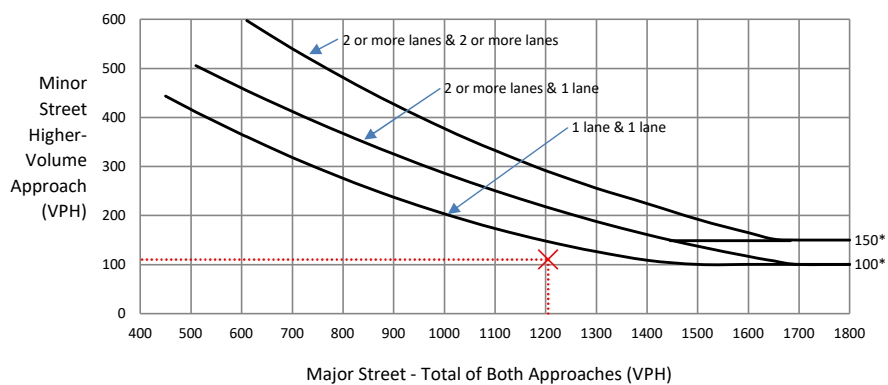
TRAFFIC SIGNAL WORKSHEETS

Figure E-1

Agua Mansa Road (NS) / Wilson Street (EW) - #1
Phase 1 (Year 2026) Base With Project
PM

Major Street: <u>Agua Mansa Road</u>	Volume: <u>1205</u>
Minor Street: <u>Wilson Street</u>	Volume: <u>110</u>

Warrant 3, Peak Hour Vehicular Volume (100% Factor)



This figure is not applicable; see Figure 4C-4 below.

*Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor street approach with one lane.

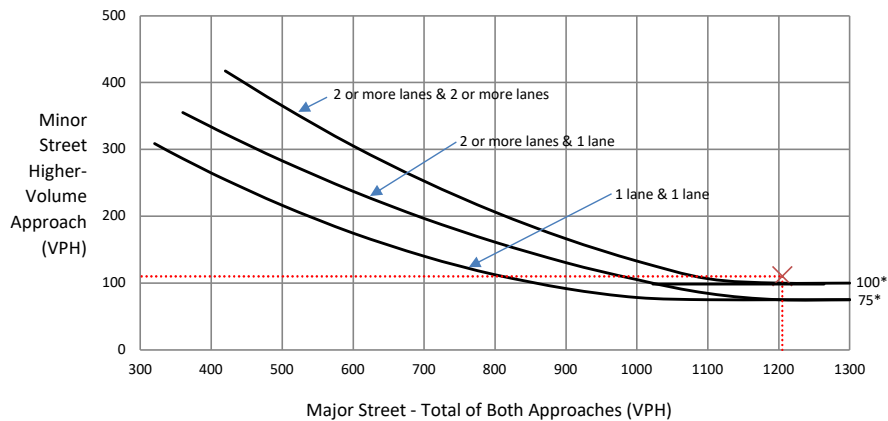
Figure E-1

Agua Mansa Road (NS) / Wilson Street (EW) - #1
Phase 1 (Year 2026) Base With Project
PM

Major Street: <u>Agua Mansa Road</u>	Volume: <u>1205</u>
Minor Street: <u>Wilson Street</u>	Volume: <u>110</u>

Warrant 3, Peak Hour Vehicular Volume (70% Factor)

(Community less than 10,000 population or above 40 mph on the major street)



TRAFFIC SIGNAL WARRANT IS SATISFIED

*Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.



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