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Environment | Planning | Development Solutions, Inc.

Date:	January 30, 2023
Prepared by:	Meghan Macias, TE
To:	City of Redlands
Site:	301 Tennessee Street
Subject:	VMT Screening Analysis

This technical memorandum evaluates the need to prepare a Vehicle Miles Traveled (VMT) analysis for the proposed 197,397 SF general light industrial building (including up to 10% cold storage) located at 301 Tennessee Street in the City of Redlands. The Assessor's Parcel Numbers are 0292-192-11 and 0292-192-14. The project site is developed with an existing 193,469 square-foot manufacturing warehouse and a single-family house. Regional access to the project site is provided by the Interstate 10 Freeway (I-10) located approximately 0.6 miles north. The proposed project will be accessible via four driveways. There would be two driveways on Tennessee Street: a 40' truck accessible driveway would be located at the northeast corner of the site and a 30' driveway for passenger cars only would be located at the southeast corner of the project. A 40' driveway for truck access would be located on West State Street. Another 40' driveway for both truck and passenger car access would be located on Kansas Street.

The proposed project will consist of a new warehouse building with a total building area of 197,397 SF inclusive of 4,000 SF of office. The project also includes 25 dock doors along the west side of the building. The proposed project includes 267 vehicle parking spaces which are located on the western and eastern parking lots of the warehouse. Truck trailer parking stalls will also be located on the northwest portion of the project site. Internal circulation will be provided via 40' drive aisles for all truck access and 30' drive aisles for passenger car parking areas. The project site plan is shown in Figure 1.

VMT Screening Analysis

Senate Bill (SB) 743 was signed by Governor Brown in 2013 and required the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to provide an alternative to LOS for evaluating Transportation impacts. SB743 specified that the new criteria should promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks and a diversity of land uses. The bill also specified that delay-based level of service could no longer be considered an indicator of a significant impact on the environment. In response, Section 15064.3 was added to the CEQA Guidelines beginning January 1, 2019. Section 15064.3 - Determining the Significance of Transportation Impacts states that Vehicle Miles Traveled (VMT) is the most appropriate measure of transportation impacts and provides lead agencies with the discretion to choose the most appropriate methodology and thresholds for evaluating VMT. Section 15064.3(c) states that the provisions of the section shall apply statewide beginning on July 1, 2020.

The City of Redlands CEQA Assessment VMT Analysis Guidelines provides guidelines for analysis of transportation impacts under CEQA. The guidelines also provide three types of screening that can be applied to determine if a project is exempt from project-level VMT analysis. If a project meets one of the following criteria, then the VMT impact of the project is considered less-than significant and no further analysis of VMT would be required:

- The project is located within a Transit Priority Area.
- The project is located in a low VMT generating area.

- The project is considered a local serving use or would generate less than 3,000 metric tons of CO2 equivalent (3,000 MT CO2e) per year.

The project was screened using the SBCTA VMT Screening Tool (https://sbcta.maps.arcgis.com/apps/webappviewer/index.html?id=779a71bc659041ad995cd48d9ef4052b). The results of the screening analysis are shown in Figures 2A and 2B.

Screening Criteria 1 – The project is located within a Transit Priority Area: The SBCTA tool illustrates that the project is located completely within a Transit Priority Area, however this criterion would not apply as the project has a floor area ratio (FAR) of 0.44. The City of Redlands CEQA Assessment VMT Analysis Guidelines state that this criterion should be applied to projects with an FAR of 0.75 or more.

Screening Criteria 2 – Low VMT Generating Area: The City's guidelines include a screening threshold for projects located in a low VMT generating area. The project's site was evaluated using the SBCTA VMT Screening Tool as discussed previously. The project is located within TAZ 53827301. The criteria applied to this project was 15% below the County baseline using the Origin-Destination VMT per Service Population. As shown in Figures 2A and 2B, the Countywide VMT/Service Population is 33.3 and the threshold would be 28.3 VMT/Service Population. The screening tool indicates that these TAZs have an OD VMT/Service Population of 61.7. This is 85.29% above the threshold and would not be considered to generate a low VMT.

Screening Criteria 3 - The project is considered a local serving use or would generate less than 3,000 metric tons of CO2 equivalent (3,000 MT CO2e) per year. Under the Project Type Screening criteria, projects which generate less than 3,000 MT CO2e per year can be presumed to have a less than significant impact on VMT. Under the criteria, Light Industrial uses less than 74,600 SF would generate less than 3,000 MT CO2e per year. The proposed project would increase the light industrial use on the site by 3,928 square feet. Therefore, the project's VMT impact would be considered less than significant and a VMT analysis would not be required under this criterion.

Summary

The proposed project would increase the light industrial use on the site by 3,928 square feet. Furthermore, when the project is compared against the City of Redlands CEQA Assessment VMT Analysis Guidelines, the project's VMT impact would be considered less than significant and a VMT analysis would not be required under this criterion.

If you have any questions about this information, please contact me at (949) 794-1186.

Figure 1: Project Site Plan

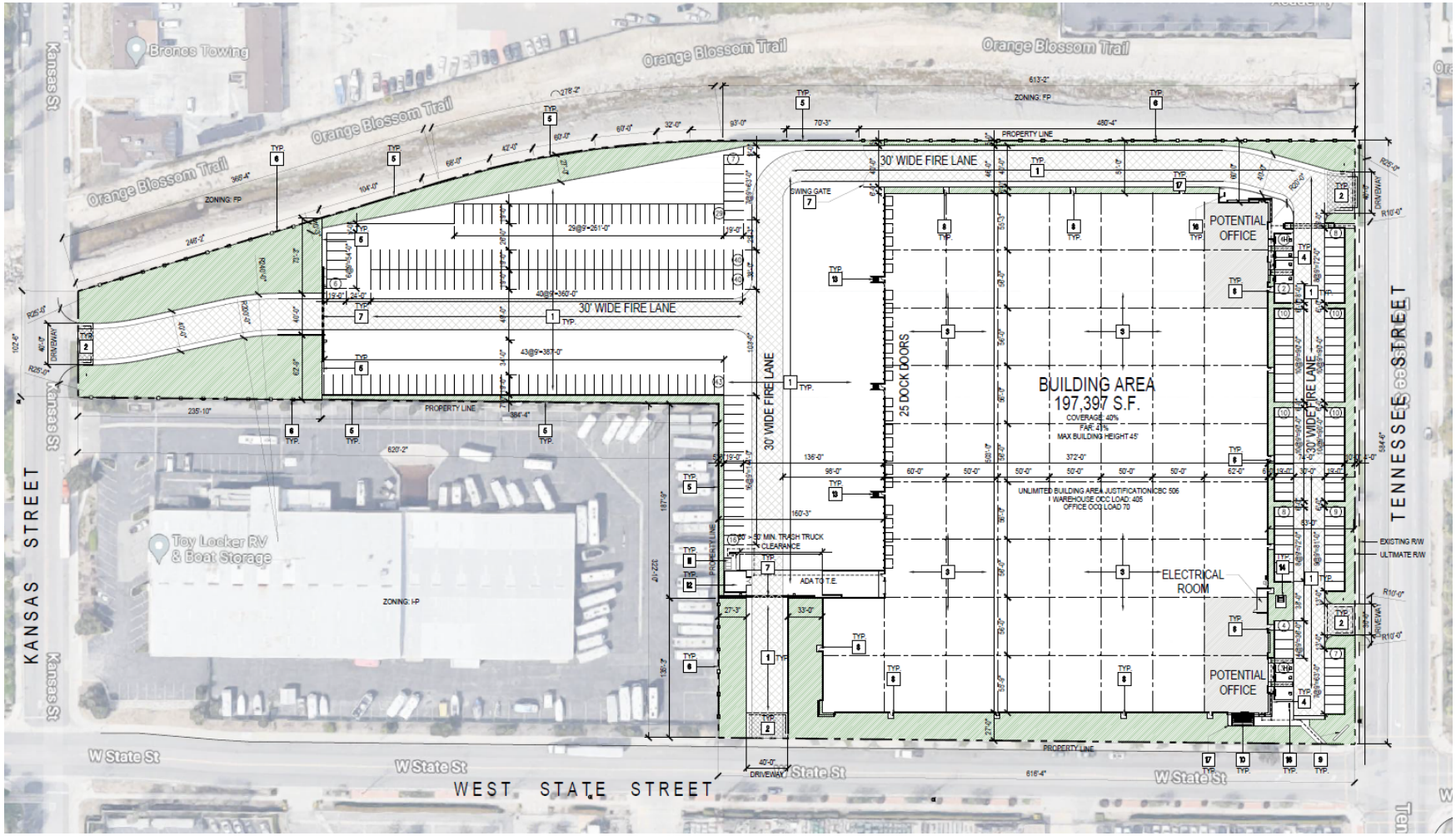


Figure 2A: SBCTA VMT Evaluation Tool Report (1/2)

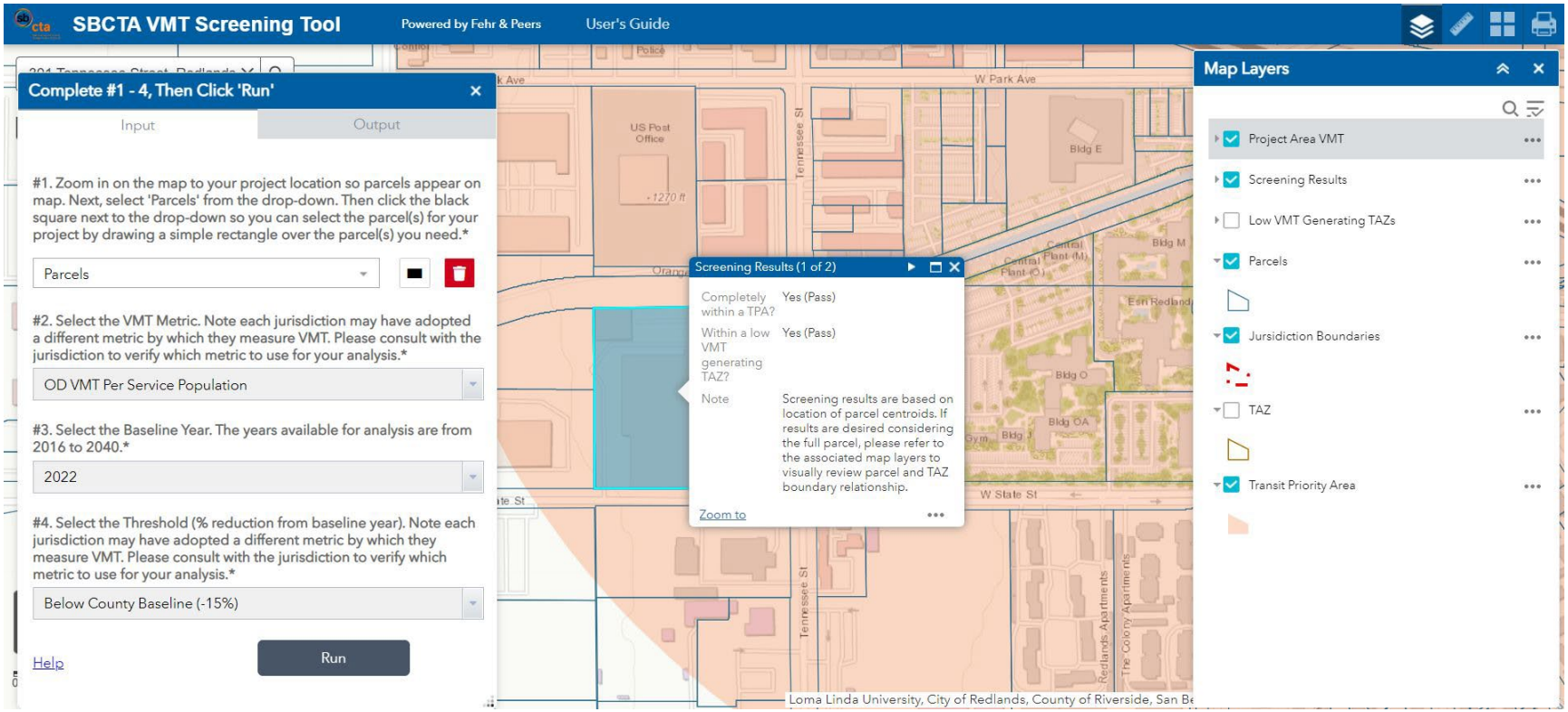


Figure 2B: SBCTA VMT Evaluation Tool Report (2/2)

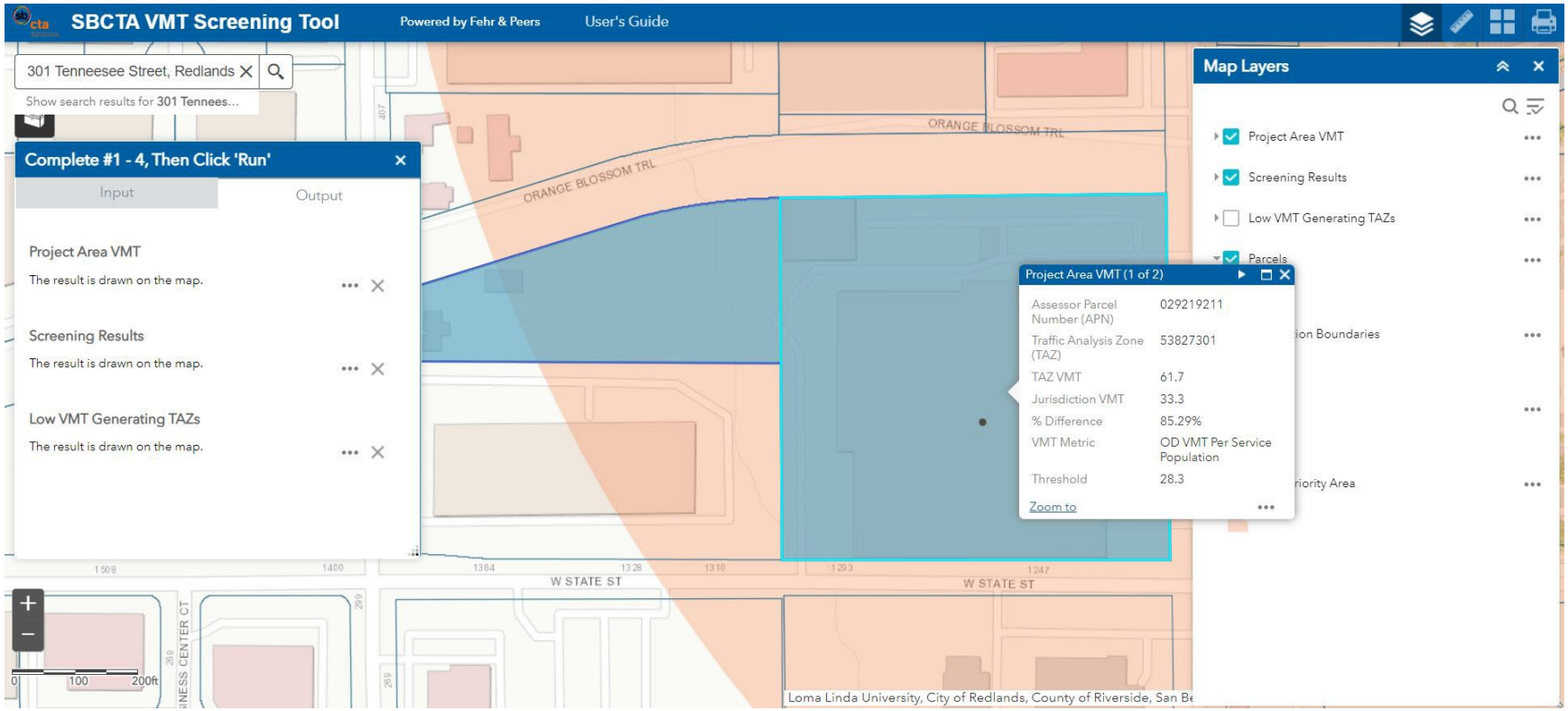


Table 1: Proposed Trip Generation

				AM Peak Hour			PM Peak Hour		
Land Use	**Units**		**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates									
General Light Industrial	TSF		4.87	0.65	0.09	0.74	0.09	0.56	0.65
Manufacturing	TSF		4.75	0.52	0.16	0.68	0.23	0.51	0.74
Single-Family Detached Housing	DU		9.43	0.182	0.518	0.7	0.5922	0.3478	0.94
Existing Trip Generation									
Existing Manufacturing Building	193.469	TSF	-919	-100	-32	-132	-44	-99	-143
Vehicle Mix [2]		***Percent*** [2,4]							
Passenger Vehicles		72.50%	-666	-73	-23	-96	-32	-72	-104
2-Axle truck		4.60%	-42	-5	-1	-6	-2	-5	-7
3-Axle truck		5.70%	-52	-6	-2	-8	-3	-6	-8
4+-Axle Trucks		17.20%	-158	-17	-6	-23	-8	-17	-25
		100%	-919	-100	-32	-132	-43	-100	-143
PCE Trip Generation [3]		***PCE Factor***							
Passenger Vehicles		1.0	-666	-73	-23	-96	-32	-72	-104
2-Axle truck		1.5	-63	-8	-1	-9	-3	-8	-11
3-Axle truck		2.0	-104	-12	-4	-16	-6	-10	-16
4+-Axle Trucks		3.0	-474	-51	-18	-69	-24	-51	-75
Existing Manufacuturing Building (PCE)			-1307	-144	-46	-190	-65	-141	-206
Single Family Residential [6]									
Passenger Vehicles	1	DU	-9	-1	-1	-1	-1	-1	-1
Total Existing Trip Generation			-928	-101	-33	-133	-45	-100	-144
Total Existing Trip Generation (PCE)			-1316	-145	-47	-191	-66	-142	-207

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

[1] Trip rates from the Institute of Transporation Engineers, Trip Generation,11th Edition, 2021. Land Use Code 110 General Light Industrial, 140 Manufacturing

[2] Vehicle Mix from the Warehouse Truck Trip Study Data Results and Usage, Southern California Air Quality Management District Warehouse Truck Trip Study July 17, 2014. Without Cold Storage

[3] Passenger Car Equivalent (PCE) factors from the San Bernardino County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

[4] Total trip generation for this line rounded to match non-vehicle mix trip generation estimate.

[5] Vehicle Mix from the Warehouse Truck Trip Study Data Results and Usage, Southern California Air Quality Management District Warehouse Truck Trip Study July 17, 2014. With Cold Storage

Environment | Planning | Development Solutions, Inc.

Date:	February 20, 2023
Prepared by:	Meghan Macias, TE
To:	City of Redlands
Site:	301 Tennessee Street
Subject:	Measure U Focused Traffic Analysis

This technical memorandum provides a Focused Traffic Analysis (FTA) for the proposed 197,397 SF general light industrial building (including up to 10% cold storage) located at 301 Tennessee Street in the City of Redlands. The Assessor's Parcel Numbers are 0292-192-11 and 0292-192-14. The FTA is in compliance with the Measure U Policies identified in the Connected City Element of the City of Redlands 2035 General Plan. The project site is developed with an existing 193,469 square-foot manufacturing warehouse (which is currently operating at its full capacity) and a single-family house. Regional access to the project site is provided by the Interstate 10 Freeway (I-10) located approximately 0.6 miles north. The proposed project will be accessible via four driveways. There would be two driveways on Tennessee Street: a 40' truck accessible driveway would be located at the northeast corner of the site and a 30' driveway for passenger cars only would be located at the southeast corner of the project. A 40' driveway for truck access would be located on West State Street. Another 40' driveway for both truck and passenger car access would be located on Kansas Street.

The proposed project will consist of a new warehouse building with a total building area of 197,397 SF inclusive of 4,000 SF of office. The project also includes 25 dock doors along the west side of the building. The proposed project includes 267 vehicle parking spaces which are located on the western and eastern parking lots of the warehouse. Truck trailer parking stalls will also be located on the northwest portion of the project site. Internal circulation will be provided via 40' drive aisles for all truck access and 30' drive aisles for passenger car parking areas. The project site plan is shown in Figure 1.

The analysis includes an evaluation of the existing and existing plus project levels of service at the following intersections:

1. Kansas Street and Park Avenue
2. Kansas Street and State Street
3. Tennessee Street and Park Avenue
4. Tennessee Street and State Street

The location of the project site and study area intersections are shown in Figure 2. AM and PM peak hour traffic operations were evaluated for the following scenarios:

- Existing Conditions
- Existing Plus Project Conditions

The analysis methodology and significance criteria utilized in this technical study are provided in *Attachment A* for reference.

Figure 1: Project Site Plan

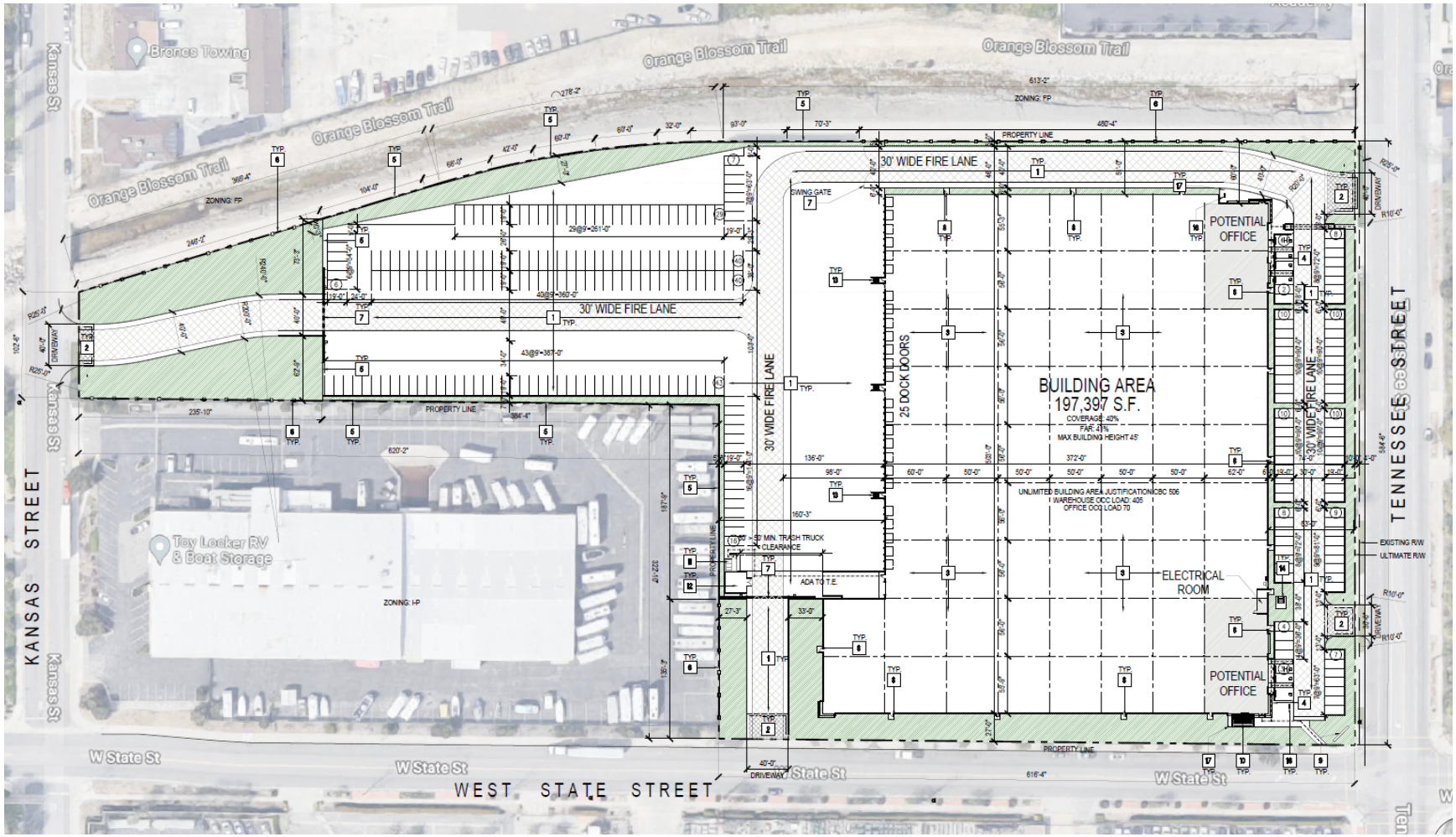
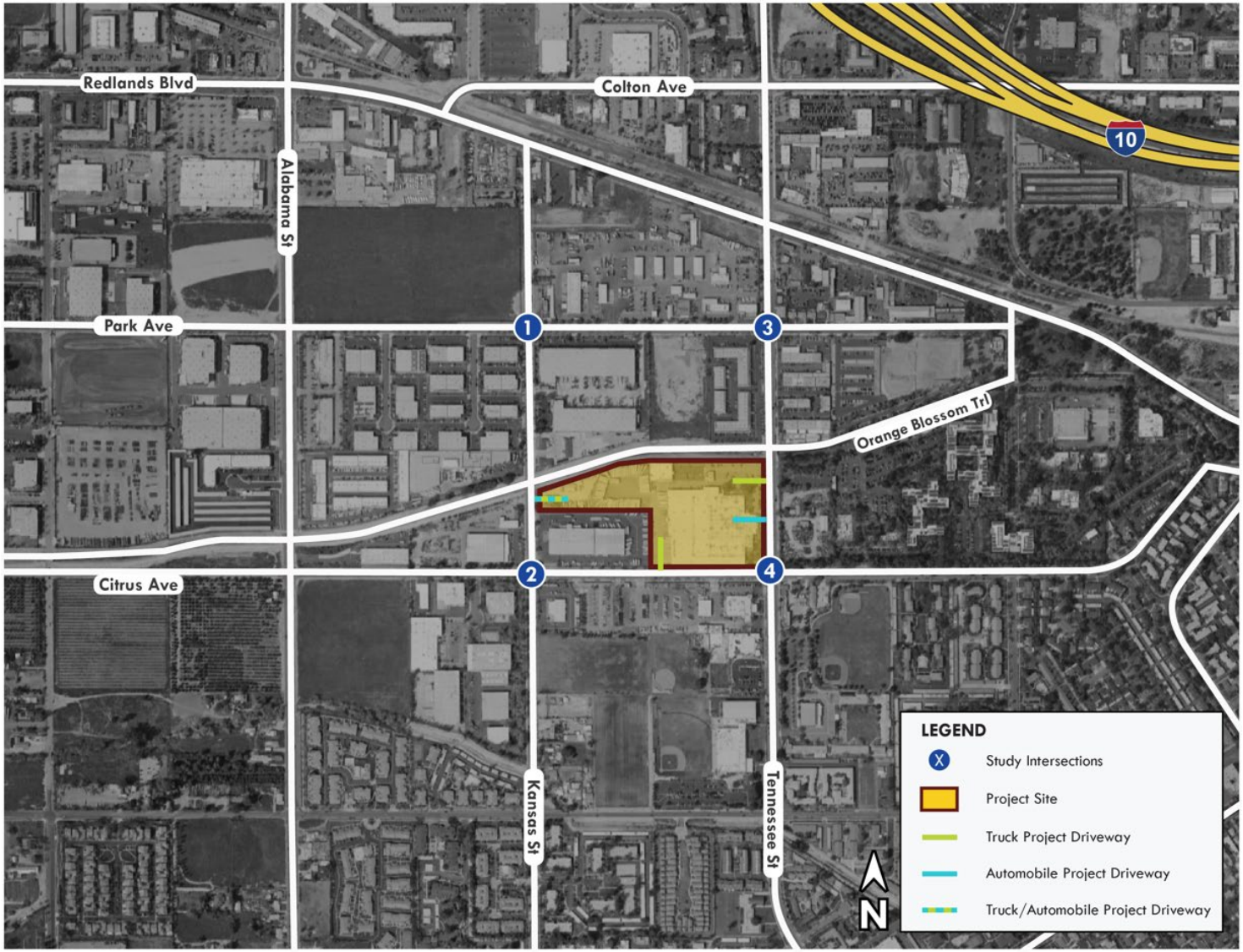
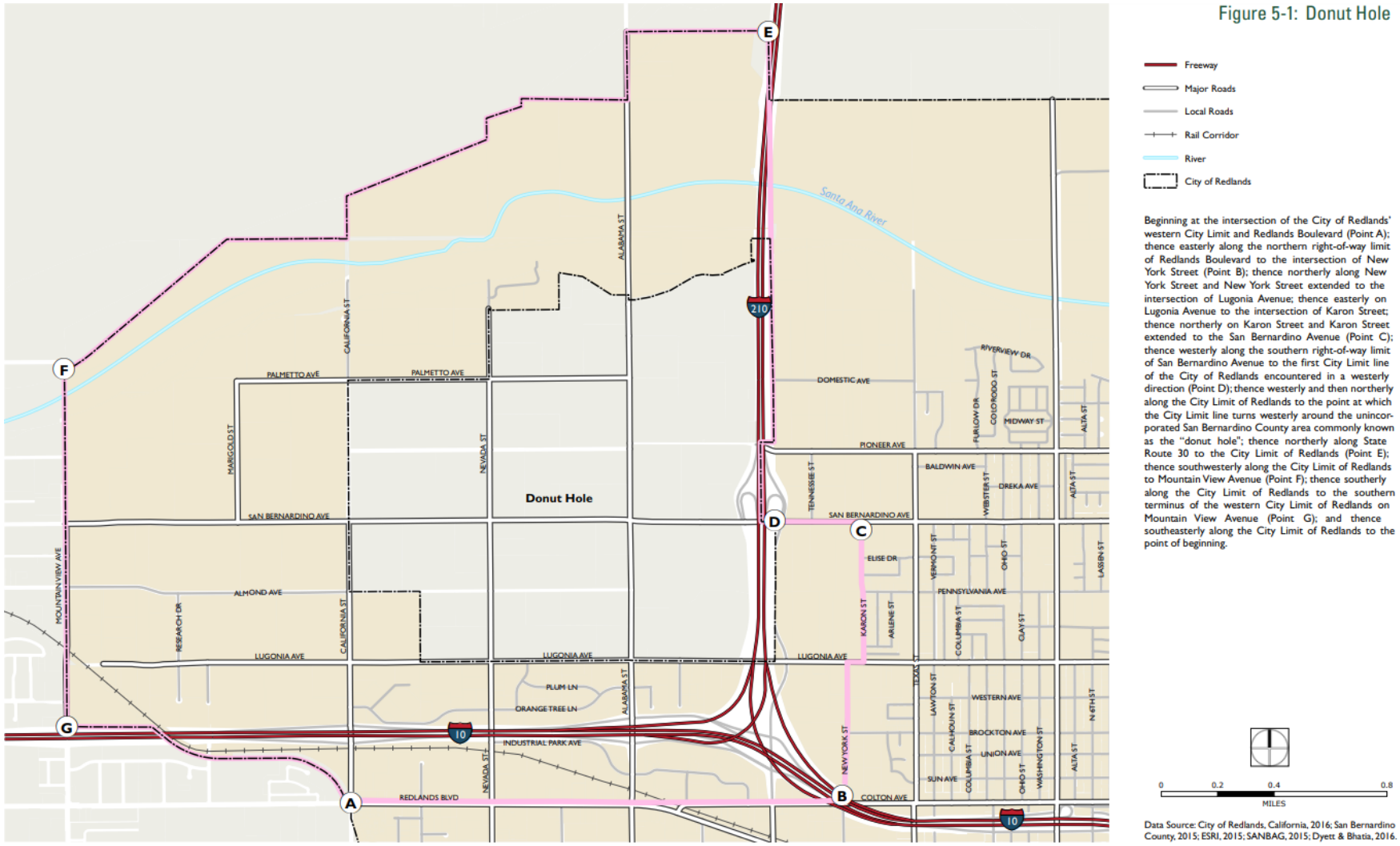


Figure 2: Study Area Intersections



City of Redlands General Plan Figure 5-1



Existing Conditions Intersection Operations

The existing Levels of Service at the study area intersections were determined using the Highway Capacity Manual (HCM), 7th Edition methodology, described in *Attachment A*.

The traffic volumes used in this FTA utilize the traffic volumes that were collected on Tuesday, September 27, 2022 for the following intersections:

1. Kansas Street and Park Avenue
2. Kansas Street and State Street
3. Tennessee Street and Park Avenue
4. Tennessee Street and State Street

The Existing AM and PM peak hour traffic volumes at the aforementioned intersections are provided in *Attachment B*.

Table 1 shows the existing AM and PM peak hour levels of service at study intersections. All Level of Service (LOS) calculations are provided in *Attachment* C. As shown in Table 1, under existing conditions, all intersections operate at a satisfactory LOS during the AM and PM peak hours except for the intersection of Kansas Street and State Street which operates at an unsatisfactory LOS F during the AM peak hour. It is to be noted that the 328.2 seconds AM delay at the Kansas Street/State Street intersection is due to the large existing volume of vehicles that are approaching the Kansas Street/State Street intersection from/to the Arrowhead Christian Academy Upper School. There are 340 vehicles (including 241 vehicles turning right) on the northbound approach during the worst AM peak hour and 453 vehicles (including 263 vehicles turning right and 180 heading through) on the eastbound approach during the worst AM peak hour. The City has a future potential plan to convert the current intersection control (i.e., two-way stop control) to an all-way stop control.

Table 1. Existing AM and PM Peak Hour Level of Service

Intersection	Traffic Control	AM Peak		PM Peak	
		Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Kansas Street and Park Avenue	TWSC	14.0	B	13.0	B
2. Kansas Street and State Street	TWSC	328.2	F	17.1	C
3. Tennessee Street and Park Avenue	Signal	8.7	A	10.6	B
4. Tennessee Street and State Street	Signal	16.5	B	12.1	B

=Unsatisfactory Level of Service

TWSC = Two-Way Stop Control

[1] Delay in Seconds

[2] Level of Service

Project Trip Generation and Distribution

The project trip generation analysis was prepared using trip rates from the Institute of Transportation Engineers (ITE), Trip Generation Manual, 11th edition. The trip generation takes credit for the existing warehouse and single-family house, as both are fully occupied in the existing condition. As shown in Table 2, the vacant existing manufacturing use is estimated to generate a total of 919 daily trips including 132 AM peak hour trips and 145 PM peak hour trips whereas the single-family house is estimated to generate a total of 9 daily trips including 1 AM peak hour trip and 1 PM peak hour trip. When adjusted for heavy truck trips and applying a passenger car equivalent (PCE) factors the previous manufacturing use would generate 1,308 daily trips including 187 PCE trips during the AM peak hour and 208 PCE trips during the PM peak hour. In total, the existing land use generates 1,317 daily PCE trips, 188 PCE trips during the AM peak hour and 209 PCE trips during the PM peak hour. The proposed general light industrial use including 10% cold storage would generate 1,387 daily PCE trips, 213 PCE trips during the AM peak hour, and 185 PCE trips during the PM peak hour.

The resulting net trip generation on the project site would result in 70 daily PCE trips, 25 PCE trips during the AM peak hour, and -24 PCE trips during the PM peak hour. The project trips were distributed throughout the study area based on logical travel paths and patterns. The project truck and passenger car trip distribution are shown in Figures 3 and 4. The project trip assignment is provided in Attachment D.

Project Site Access Analysis

Regional access to the project site is provided by the Interstate 10 Freeway (I-10) located approximately 0.6 miles north. The proposed project will be accessible via four driveways. There would be two driveways on Tennessee Street: a 40' truck accessible driveway would be located at the northeast corner of the site and a 30' driveway for passenger cars only would be located at the southeast corner of the project. A 40' driveway for truck access would be located on West State Street. Another 40' driveway for both truck and passenger car access would be located on Kansas Street. It is to be noted that all 4 driveways would be perpendicular to City streets as they currently are in the existing condition. Furthermore, the location of the driveways would not change and no new access to City streets is proposed.

Project Truck Routing

As shown in Figure 3 (*Project Truck Trip Distribution*), trucks would utilize the City's designated truck routes including Tennessee Street, Park Avenue, and Citrus Avenue. Trucks would travel to the project site from I-10 freeway via Alabama Street, Park Avenue and Kansas Street. Trucks would also use Tennessee Street and Citrus Avenue to enter the project site. Trucks would exit the project site through Kansas Street, Park Avenue, Alabama Street, and ultimately, the I-10 freeway. Trucks would also use Tennessee Street and Citrus Avenue.

Table 2: Proposed Trip Generation

				AM Peak Hour			PM Peak Hour		
Land Use	**Units**		**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates									
General Light Industrial	TSF		4.87	0.65	0.09	0.74	0.09	0.56	0.65
Manufacturing	TSF		4.75	0.52	0.16	0.68	0.23	0.51	0.74
Single-Family Detached Housing	DU		9.43	0.18	0.52	0.70	0.59	0.35	0.94
Existing Trip Generation									
Existing Manufacturing Building	193.469	TSF	-919	-101	-31	-132	-44	-99	-143
Vehicle Mix [2]		***Percent*** [2,4]							
Passenger Vehicles		72.50%	-667	-73	-23	-96	-32	-72	-104
2-Axle truck		4.60%	-42	-5	-1	-6	-2	-5	-7
3-Axle truck		5.70%	-52	-6	-2	-8	-3	-6	-9
4+-Axle Trucks		17.20%	-158	-17	-5	-22	-8	-17	-25
		100%	-919	-101	-31	-132	-45	-100	-145
PCE Trip Generation [3]		***PCE Factor***							
Passenger Vehicles		1.0	-667	-73	-23	-96	-32	-72	-104
2-Axle truck		1.5	-63	-8	-1	-9	-3	-8	-11
3-Axle truck		2.0	-104	-12	-4	-16	-6	-12	-18
4+-Axle Trucks		3.0	-474	-51	-15	-66	-24	-51	-75
Existing Manufacuturing Building (PCE)			-1308	-144	-43	-187	-65	-143	-208
Single Family Residential [6]									
Passenger Vehicles	1	DU	-9	0	-1	-1	-1	0	-1
Total Existing Trip Generation			-928	-101	-32	-133	-45	-99	-144
Total Existing Trip Generation (PCE)			-1317	-144	-44	-188	-66	-143	-209

Proposed Project Trip Generation

Proposed General Light Industrial	197.397	TSF	961	129	18	147	18	110	128
Vehicle Mix (90 % Warehousing) [2]		***Percent*** [2]							
Passenger Vehicles		72.50%	627	84	12	96	12	72	84
2-Axle truck		4.60%	40	5	1	6	1	5	6
3-Axle truck		5.70%	49	7	1	8	1	6	7
4+-Axle Trucks		17.20%	149	20	3	23	3	17	20
		100%	865	116	17	133	17	100	117
Vehicle Mix (10 % Cold Storage) [5]		***Percent*** [5]							
Passenger Vehicles		55.30%	53	7	1	8	0	7	7
2-Axle truck		15.50%	15	2	0	2	0	1	1
3-Axle truck		4.90%	5	1	0	1	0	0	0
4+-Axle Trucks		24.30%	23	3	0	3	0	3	3
		100%	96	13	1	14	0	11	11
PCE Trip Generation [3]		***PCE Factor***							
Passenger Vehicles		1.0	680	91	13	104	12	79	91
2-Axle truck		1.5	83	11	2	13	2	9	11
3-Axle truck		2.0	108	16	2	18	2	12	14
4+-Axle Trucks		3.0	516	69	9	78	9	60	69
Proposed General Light Industrial Building (PCE)			1387	187	26	213	25	160	185
Total Existing Trip Generation (PCE)			-1317	-144	-44	-188	-66	-143	-209
NET PCE Trip Generation			**70**	**43**	**-18**	**25**	**-41**	**17**	**-24**

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

[1] Trip rates from the Institute of Transporation Engineers, Trip Generation,11th Edition, 2021. Land Use Code 110 General Light Industrial, 140 Manufacturing

[2] Vehicle Mix from the Warehouse Truck Trip Study Data Results and Usage, Southern California Air Quality Management District Warehouse Truck Trip Study July 17, 2014. Without Cold Storage

[3] Passenger Car Equivalent (PCE) factors from the San Bernardino County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

[4] Total trip generation for this line rounded to match non-vehicle mix trip generation estimate.

[5] Vehicle Mix from the Warehouse Truck Trip Study Data Results and Usage, Southern California Air Quality Management District Warehouse Truck Trip Study July 17, 2014. With Cold Storage

Figure 3: Project Truck Trip Distribution

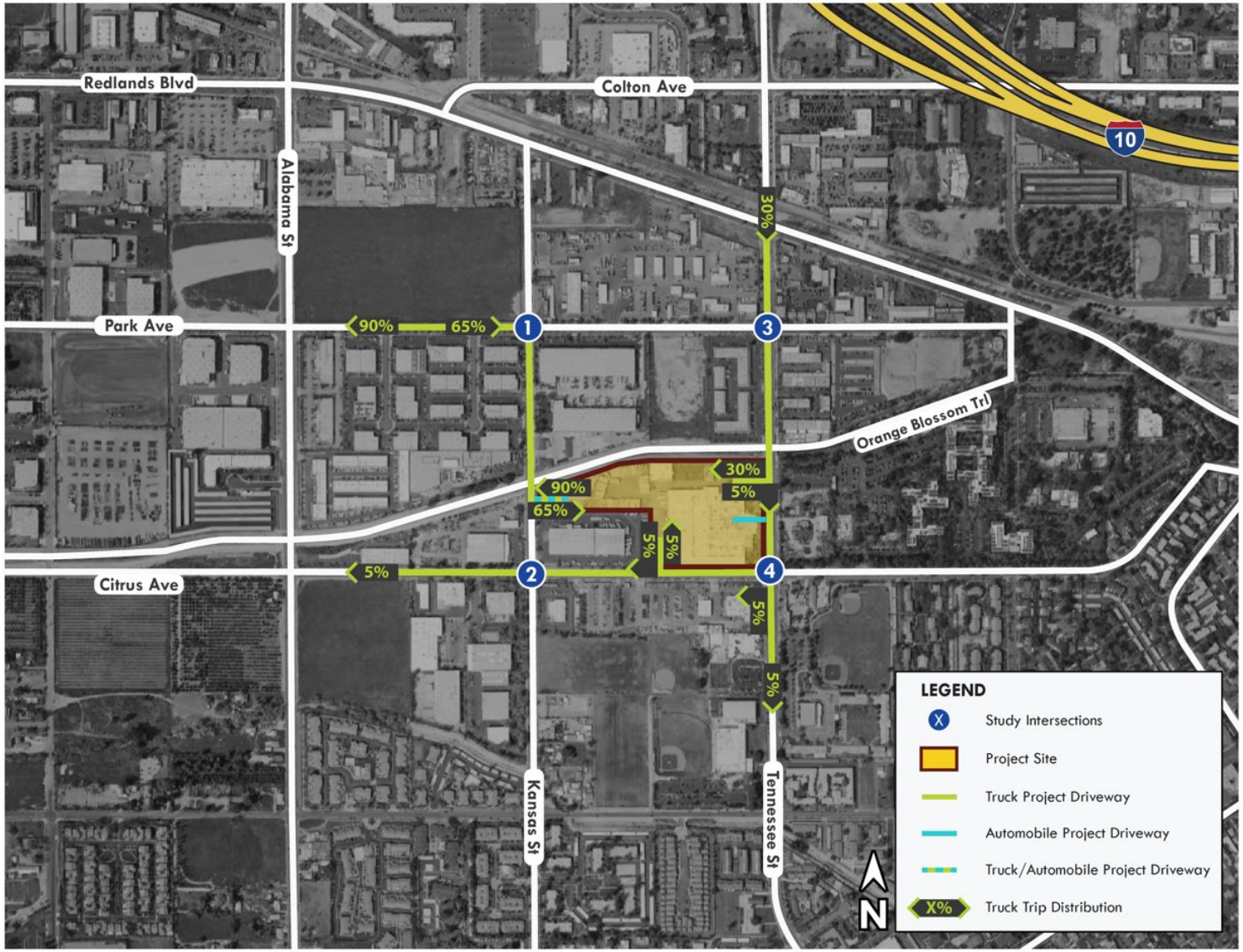


Figure 4: Project Passenger Car Trip Distribution

Existing Plus Project Conditions Intersection Operations

The Existing Plus Project Conditions were analyzed by adding project trips to the existing volumes at the study area intersections. It is to be noted that existing trips for the manufacturing warehouse were removed. Table 3 shows the Existing and Existing Plus Project AM and PM peak hour LOS at study intersections. All LOS calculations are provided in *Attachment* C. As shown in Table 3, under existing plus project conditions, all intersections would operate at a satisfactory LOS during the AM and PM peak hours except for the intersection of Kansas Street and State Street which would continue to operate at an unsatisfactory LOS F during the AM peak hour. However, the project does not impact the intersection since it doesn't increase the control delay at the intersection. It is to be noted that the 328.2 seconds AM delay at the Kansas Street/State Street intersection is due to the large existing volume of vehicles that are approaching the Kansas Street/State Street intersection from/to the Arrowhead Christian Academy Upper School. There are 340 vehicles (including 241 vehicles turning right) on the northbound approach during the worst AM peak hour and 453 vehicles (including 263 vehicles turning right and 180 heading through) on the eastbound approach during the worst AM peak hour. The City has a future potential plan to convert the current intersection control (i.e., two-way stop control) to an all-way stop control.

Table 3. Existing Plus Project AM and PM Peak Hour Level of Service

Intersection	Traffic Control	Existing				Existing Plus Project			
		AM Peak		PM Peak		AM Peak		PM Peak	
		Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delay[1]	LOS[2]
1. Kansas Street and Park Avenue	TWSC	14.0	B	13.0	B	13.9	B	13.1	B
2. Kansas Street and State Street	TWSC	328.2	F	17.1	C	328.2	F	17.1	C
3. Tennessee Street and Park Avenue	Signal	8.7	A	10.6	B	8.7	A	10.7	B
4. Tennessee Street and State Street	Signal	16.5	B	12.1	B	16.5	B	12.3	B

=Unsatisfactory Level of Service

TWSC = Two-Way Stop Control

[1] Delay in Seconds

[2] Level of Service

[3] As per the City of Redlands Threshold

The proposed project's study area intersections were evaluated without and with project trips to determine if the project would cause any LOS deficiencies. All study area intersections would operate at satisfactory LOS in the Existing and Existing Plus Project Conditions except for the intersection of Kansas Street and State Street which would continue to operate at an LOS F; however, the project does not impact the intersection since it doesn't increase the time delay. It is to be noted that outbound AM trip generation rates for Manufacturing are higher than General Light Industrial use; therefore, as shown in Table 3, the time delay for the intersection of Kansas Street and Park Avenue in the Existing Plus Project AM scenario decreases when compared to the Existing scenario. Moreover, the project would not result in any unsatisfactory LOS and no improvements would be required.

Measure U Focused Traffic Analysis

This study evaluates the project using the following Measure U Policies identified in the Connected City Element of the City of Redlands 2035 General Plan as well as the County of San Bernardino Transportation Impact Study Guidelines (TIS Guidelines).

Measure U Policies (Standards for Traffic Service):

5.20a Maintain LOS C or better as the standard at all intersections presently at LOS C or better.

As shown in Table 3, all study intersections currently operate at LOS C or better except for the intersection of Kansas Street and State Street during the AM Peak hour. Addition of project traffic would not cause any location to deteriorate from LOS C to worse than LOS C.

5.20b Within the area identified in GP Figure 5-1, including that unincorporated County area identified on GP Figure 5-1 as the "donut hole", maintain LOS C or better; however, accept a reduced LOS on a case-by-case basis upon approval by a four-fifths (4/5ths) vote of the total authorized membership of the City Council. It is to be noted that Measure U Policy 5.20b would not apply since the project is not within the area identified in GP Figure 5-1.

5.20c Where the current level of service at a location within the City of Redlands is below the Level of Service (LOS) C standard, no development project shall be approved that cannot be mitigated so that it does not reduce the existing level of service at that location except as provided in Section 5.20b.

As shown in Table 3, the intersection of Kansas Street and State Street would operate at LOS F during the AM peak hour. Addition of project traffic would not change the delay or LOS at the intersection. Therefore, no mitigation is necessary as the project does not reduce the existing level of service at the intersection.

5.20f If monitoring of conditions at intersections within the East Valley Corridor Specific Plan area and intersections affected by EVC development indicates that peak hour LOS will drop below the standards set by Policies 5.20a, 5.20b, 5.20c revise the EVC Specific Plan. Revisions necessary may include additional roadway improvements, mandated higher TDM (Travel Demand Management, See Section 5.40) reductions in single-occupant vehicle trip share, reduction of intensity of development, or changes in use of undeveloped sites.

As noted previously, the project does not result in a drop in LOS at any intersection and therefore would not cause the LOS to drop below the referenced standards.

Summary

The proposed project's study area intersections were evaluated without and with project trips to comply with the City's Measure U policies by determining if the project would cause any LOS deficiencies. All study area intersections would operate at satisfactory LOS in the Existing and Existing Plus Project Conditions except for the intersection of Kansas Street and State Street which would continue to operate at an LOS F; however, the project does not impact the intersection since it doesn't increase the time delay. Moreover, the project would not result in any unsatisfactory LOS; therefore, the project would be in compliance with Measure U and no improvements would be required.

If you have any questions about this information, please contact me at (949) 794-1186.

Attachment A – Analysis Methodology

Methodology

Intersection operations are evaluated using Level of Service (LOS), which is a measure of the delay experienced by drivers on a roadway facility. LOS A indicates free-flow traffic conditions and is generally the best operating conditions. LOS F is an extremely congested condition and is the worst operating condition from the driver's perspective. In this report, LOS at signalized and unsignalized intersections is calculated using the Highway Capacity Manual (HCM), 7th Edition methodology.

LOS at signalized intersections is defined in terms of the weighted average control delay for the intersection as a whole. Control delay is a measure of the increase in travel time that is experienced due to traffic signal control and is expressed in terms of average control delay per vehicle (in seconds). Control delay is determined based on the intersection geometry and volume, signal cycle length, phasing and coordination along the arterial corridor. Table 4 shows the relationship between control delay and LOS.

Table 4: Relationship between Control Delay and LOS at a Signalized Intersection

LOS	Delay (Seconds per Vehicle)
A	≤ 10
B	>10 – 20
C	>20 – 35
D	>35 – 55
E	>55 – 80
F	>80

Unsignalized intersections are categorized as either all-way stop control (AWSC) or two-way stop control (TWSC). LOS at AWSC intersections is determined by the weighted average control delay of the overall intersection. The HCM TWSC intersection methodology calculates LOS based on the delay experienced by drivers on the minor (stop-controlled) approaches to the intersection. For TWSC intersections, LOS is determined for each minor-street movement, as well as the major-street left-turns. The relationship between delay and LOS at Unsignalized intersections is shown in Table 5.

Table 5: Relationship between Delay and LOS an Unsignalized Intersection

LOS	Delay (seconds)
A	0-10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

Significance Criteria

The city of Redlands has established LOS C as the minimum level of service for its intersections. To determine whether the addition project traffic at an intersection result in a project-related deficiency, the following threshold of significance will be utilized:

- If the addition of project-generated trips reduces the peak hour level of service of the intersection from acceptable operation (e.g., LOS A, B or C) to deficient operation (e.g., LOS D, E or F) or
- If the addition of project-generated trips worsens the pre-project level of service at an intersection at a deficient LOS (e.g., LOS D, E or F) and, if unsignalized, cause an unsignalized intersection to satisfy a CAMUTCD signal warrant.

Attachment B – Traffic Counts

INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:	LOCATION:	Redlands	PROJECT #:	SC3641
9/27/22	NORTH & SOUTH:	Kansas	LOCATION #:	1
TUESDAY	EAST & WEST:	Park	CONTROL:	STOP N/S

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

		NORTHBOUND Kansas			SOUTHBOUND Kansas			EASTBOUND Park			WESTBOUND Park				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	2	1	3	5	3	9	5	18	4	1	22	0	71					0
	7:15 AM	1	4	1	1	0	5	1	39	2	2	34	1	90					0
	7:30 AM	2	1	1	3	2	4	2	23	4	1	42	0	83					0
	7:45 AM	6	2	1	0	5	9	0	47	4	5	55	3	137					0
	8:00 AM	4	1	8	1	1	5	3	49	0	7	54	1	131					0
	8:15 AM	6	4	4	1	5	4	0	41	7	4	59	1	133					0
	8:30 AM	0	1	2	3	1	4	1	36	2	2	48	0	99					0
	8:45 AM	1	3	3	0	5	2	1	24	1	3	38	2	81					0
	VOLUMES	21	17	21	13	21	41	13	275	23	24	349	8	824	0	0	0	0	0
	APPROACH %	35%	29%	36%	18%	28%	55%	4%	89%	7%	6%	92%	2%						
	APP/DEPART	59	/	38	74	/	68	310	/	309	381	/	410	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	16	8	14	5	12	21	4	172	13	18	214	5	499					
	APPROACH %	41%	21%	37%	12%	31%	57%	2%	91%	7%	7%	90%	2%						
	PEAK HR FACTOR		0.694			0.661			0.922			0.931		0.914					
	APP/DEPART	38	/	17	37	/	42	188	/	191	237	/	251	0					
PM	4:00 PM	1	3	6	3	0	3	0	35	4	9	41	3	107					0
	4:15 PM	0	2	3	1	1	1	4	46	2	0	25	1	85					0
	4:30 PM	3	2	0	1	0	1	2	57	3	1	36	3	109					0
	4:45 PM	2	3	2	0	0	0	1	39	1	1	29	0	78					0
	5:00 PM	3	3	0	1	2	6	2	71	1	0	21	1	110					0
	5:15 PM	1	1	0	0	2	3	2	52	0	0	35	0	95					0
	5:30 PM	0	4	2	4	1	1	0	48	0	2	36	3	100					0
	5:45 PM	3	1	6	1	1	3	2	34	0	0	18	0	69					0
	VOLUMES	13	19	19	11	7	17	13	381	10	12	240	11	751	0	0	0	0	0
	APPROACH %	25%	38%	37%	32%	20%	48%	3%	94%	2%	5%	91%	4%						
	APP/DEPART	50	/	43	35	/	29	404	/	410	263	/	269	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	9	9	2	2	4	9	7	219	5	2	120	4	391					
	APPROACH %	45%	47%	8%	13%	27%	60%	3%	95%	2%	2%	95%	3%						
	PEAK HR FACTOR		0.731			0.441			0.784			0.788		0.892					
	APP/DEPART	19	/	20	15	/	11	231	/	222	126	/	138	0					

Kansas

NORTH SIDE

Park WEST SIDE EAST SIDE **Park**

SOUTH SIDE

Kansas

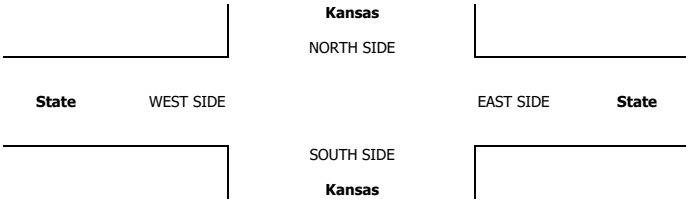
INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:	LOCATION:		PROJECT #:	
9/27/22	NORTH & SOUTH:	Redlands Kansas	LOCATION #:	SC3641 2
TUESDAY	EAST & WEST:	State	CONTROL:	STOP N/S

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

		NORTHBOUND Kansas			SOUTHBOUND Kansas			EASTBOUND State			WESTBOUND State				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	4	0	7	1	1	3	2	14	4	17	23	1	75					0
	7:15 AM	6	0	12	0	0	0	1	24	12	25	40	2	121					0
	7:30 AM	7	4	21	0	1	0	3	38	36	44	41	3	198					0
	7:45 AM	22	8	69	0	3	5	2	40	108	34	66	0	356					0
	8:00 AM	27	3	104	0	0	2	3	57	108	27	68	6	405					0
	8:15 AM	24	4	47	3	1	3	2	45	11	17	42	1	200					0
	8:30 AM	4	0	19	2	0	1	1	49	2	9	30	0	116					0
	8:45 AM	3	0	3	3	2	3	4	34	1	7	28	0	86					0
	VOLUMES	97	19	281	8	8	16	17	300	282	179	336	13	1,555	0	0	0	0	0
	APPROACH %	24%	5%	71%	25%	25%	50%	3%	50%	47%	34%	64%	2%						
	APP/DEPART	397	/	49	32	/	469	598	/	589	528	/	449	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	80	19	241	3	5	10	10	180	263	122	216	10	1,158					
	APPROACH %	24%	6%	71%	17%	28%	56%	2%	40%	58%	35%	62%	3%						
	PEAK HR FACTOR		0.633			0.563			0.673			0.866		0.716					
	APP/DEPART	340	/	39	18	/	390	453	/	424	348	/	306	0					
PM	4:00 PM	3	2	16	1	3	0	0	51	12	12	19	1	118					0
	4:15 PM	6	3	9	2	0	3	4	41	6	12	33	0	117					0
	4:30 PM	7	2	12	2	0	3	0	42	8	13	27	2	116					0
	4:45 PM	6	3	23	0	0	2	0	56	7	7	33	3	140					0
	5:00 PM	13	4	44	2	2	3	0	60	11	13	25	0	176					0
	5:15 PM	3	0	15	2	0	2	0	46	1	8	32	0	108					0
	5:30 PM	0	3	6	2	0	3	1	43	3	10	21	0	91					0
	5:45 PM	1	4	9	1	0	1	1	38	5	7	25	0	92					0
	VOLUMES	39	20	132	11	4	15	6	375	53	82	214	6	956	0	0	0	0	0
	APPROACH %	20%	10%	69%	37%	13%	50%	1%	87%	12%	27%	71%	2%						
	APP/DEPART	191	/	32	30	/	138	434	/	518	302	/	268	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	32	12	87	6	2	10	4	198	32	45	118	5	548					
	APPROACH %	25%	9%	67%	32%	9%	59%	2%	85%	14%	27%	70%	3%						
	PEAK HR FACTOR		0.537			0.654			0.824			0.949		0.778					
	APP/DEPART	130	/	21	17	/	78	234	/	290	167	/	160	0					



INTERSECTION TURNING MOVEMENT COUNTS

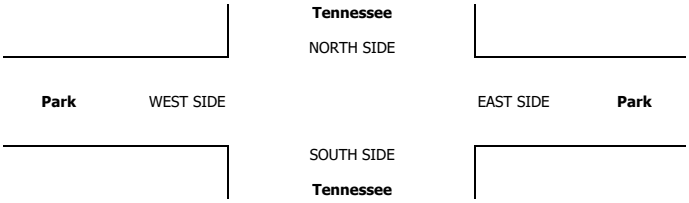
PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:	LOCATION:	Redlands	PROJECT #:	SC3641
9/27/22	NORTH & SOUTH:	Tennessee	LOCATION #:	3
TUESDAY	EAST & WEST:	Park	CONTROL:	SIGNAL

	NOTES:									
PCE Adjusted	Class	1	2	3	4	5	6			
	Factor	1	1.5	2	3	2	2			

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Tennessee			SOUTHBOUND Tennessee			EASTBOUND Park			WESTBOUND Park				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	3	105	6	4	92	18	15	11	6	5	20	3	286					0
	7:15 AM	14	131	7	4	106	20	12	14	16	0	20	2	343					0
	7:30 AM	17	158	14	10	135	24	10	9	17	4	15	1	412					0
	7:45 AM	22	180	17	14	178	34	15	21	17	9	31	2	539					0
	8:00 AM	30	193	14	9	118	28	17	27	9	4	16	3	467					0
	8:15 AM	20	118	14	5	96	30	18	25	7	3	19	1	355					0
	8:30 AM	12	106	13	4	59	17	20	24	9	2	29	8	301					0
	8:45 AM	15	104	10	9	92	25	12	24	13	3	21	2	327					0
	VOLUMES	132	1,093	94	59	874	194	117	155	92	30	171	22	3,028	0	0	0	0	0
	APPROACH %	10%	83%	7%	5%	78%	17%	32%	43%	25%	13%	77%	10%						
	APP/DEPART	1,318	/	1,231	1,126	/	995	364	/	307	222	/	496	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	89	648	59	38	526	115	60	82	50	20	81	7	1,772					
	APPROACH %	11%	82%	7%	6%	78%	17%	31%	43%	26%	19%	75%	7%						
	PEAK HR FACTOR		0.842			0.753			0.903			0.640		0.822					
	APP/DEPART	795	/	715	678	/	596	192	/	178	108	/	284	0					
PM	4:00 PM	22	97	5	0	130	17	24	20	16	9	26	8	373					0
	4:15 PM	16	128	7	3	113	22	29	30	22	3	15	3	388					0
	4:30 PM	20	117	8	2	130	14	27	35	31	6	16	7	412					0
	4:45 PM	12	85	8	2	101	13	31	22	27	4	15	11	329					0
	5:00 PM	20	143	15	3	120	8	36	40	20	6	12	9	429					0
	5:15 PM	15	104	12	2	104	18	17	24	16	6	9	3	328					0
	5:30 PM	12	116	9	2	100	13	20	26	16	5	16	5	339					0
	5:45 PM	8	105	3	0	106	6	16	19	14	3	7	4	289					0
	VOLUMES	122	893	67	14	903	109	199	214	161	42	115	49	2,884	0	0	0	0	0
	APPROACH %	11%	83%	6%	1%	88%	11%	35%	37%	28%	20%	56%	24%						
	APP/DEPART	1,082	/	1,141	1,025	/	1,105	573	/	294	206	/	345	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	66	472	38	10	464	56	123	126	99	19	58	30	1,557					
	APPROACH %	11%	82%	7%	2%	88%	11%	35%	36%	29%	18%	54%	28%						
	PEAK HR FACTOR		0.815			0.908			0.908			0.898		0.907					
	APP/DEPART	576	/	624	529	/	582	347	/	173	106	/	179	0					



INTERSECTION TURNING MOVEMENT COUNTS

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

DATE:	LOCATION:	Redlands	PROJECT #:	SC3641
9/27/22	NORTH & SOUTH:	Tennessee	LOCATION #:	4
TUESDAY	EAST & WEST:	State	CONTROL:	SIGNAL

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

		NORTHBOUND Tennessee			SOUTHBOUND Tennessee			EASTBOUND State			WESTBOUND State				U-TURNS				
	LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB	SB	EB	WB	TTL
AM	7:00 AM	15	92	4	5	74	8	7	4	11	6	19	13	255					0
	7:15 AM	15	99	8	6	66	17	11	8	14	7	33	19	303					0
	7:30 AM	36	156	10	8	130	22	20	14	29	41	33	16	513					0
	7:45 AM	25	140	22	12	143	18	46	24	46	48	51	17	591					0
	8:00 AM	37	147	26	4	101	31	76	52	42	17	42	25	599					0
	8:15 AM	10	103	19	11	70	8	51	40	32	10	38	11	402					0
	8:30 AM	14	99	16	8	53	8	25	26	20	4	17	11	300					0
	8:45 AM	10	90	13	10	55	8	19	20	10	4	21	16	274					0
	VOLUMES	161	923	118	63	690	120	253	188	203	137	253	128	3,235	0	0	0	0	0
	APPROACH %	13%	77%	10%	7%	79%	14%	39%	29%	32%	26%	49%	25%						
	APP/DEPART	1,202	/	1,303	872	/	1,030	644	/	369	518	/	534	0					
	BEGIN PEAK HR		7:30 AM																
	VOLUMES	108	544	77	35	443	79	192	130	149	116	164	69	2,104					
	APPROACH %	15%	75%	11%	6%	80%	14%	41%	28%	32%	33%	47%	20%						
	PEAK HR FACTOR		0.870			0.804			0.693			0.753		0.879					
	APP/DEPART	729	/	805	557	/	708	470	/	241	348	/	351	0					
PM	4:00 PM	13	83	3	10	125	17	19	32	24	11	14	18	367					0
	4:15 PM	11	108	13	6	100	7	24	23	20	9	20	11	350					0
	4:30 PM	8	85	7	19	138	14	18	20	24	8	24	13	376					0
	4:45 PM	11	76	7	12	111	5	8	29	39	10	23	7	336					0
	5:00 PM	8	105	8	16	125	11	25	41	42	8	16	25	429					0
	5:15 PM	2	71	4	20	94	14	16	27	24	11	24	18	323					0
	5:30 PM	5	101	5	12	96	8	17	23	15	10	15	13	319					0
	5:45 PM	2	79	10	9	114	6	9	16	22	8	22	10	306					0
	VOLUMES	60	706	57	104	902	81	134	210	209	75	157	114	2,805	0	0	0	0	0
	APPROACH %	7%	86%	7%	10%	83%	7%	24%	38%	38%	22%	45%	33%						
	APP/DEPART	822	/	953	1,086	/	1,185	552	/	370	346	/	297	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	38	372	35	53	473	37	74	112	125	35	83	56	1,491					
	APPROACH %	9%	84%	8%	9%	84%	6%	24%	36%	40%	20%	48%	32%						
	PEAK HR FACTOR		0.846			0.825			0.721			0.883		0.869					
	APP/DEPART	445	/	501	563	/	633	310	/	200	173	/	157	0					

Tennessee

NORTH SIDE

State WEST SIDE EAST SIDE **State**

SOUTH SIDE

Tennessee

Attachment C – Level of Service Worksheets

301 Tennessee Street Industrial

Vistro File: C:\...\Vistro - Updated.vistro
Report File: C:\...\Existing AM.pdf

Scenario 1 Existing AM
10/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Kansas/Park	Two-way stop	HCM 7th Edition	NB Left	0.053	14.0	B
2	Kansas/State	Two-way stop	HCM 7th Edition	NB Left	0.813	328.2	F
3	Tennessee/Park	Signalized	HCM 7th Edition	EB Left	0.354	8.7	A
4	Tennessee/State	Signalized	HCM 7th Edition	NB Left	0.505	16.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Kansas/Park

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

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

Volumes

Name	Kansas			Kansas			Park			Park		
Base Volume Input [veh/h]	16	8	14	5	12	21	4	172	13	18	214	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	8	14	5	12	21	4	172	13	18	214	5
Peak Hour Factor	0.6940	0.6940	0.6940	0.6610	0.6610	0.6610	0.9220	0.9220	0.9220	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	3	5	2	5	8	1	47	4	5	57	1
Total Analysis Volume [veh/h]	23	12	20	8	18	32	4	187	14	19	230	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.03	0.02	0.02	0.04	0.04	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	13.96	13.26	9.99	13.49	13.18	10.08	7.71	0.00	0.00	7.65	0.00	0.00
Movement LOS	B	B	A	B	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.34	0.34	0.34	0.31	0.31	0.31	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	8.39	8.39	8.39	7.83	7.83	7.83	0.17	0.17	0.17	0.80	0.80	0.80
d_A, Approach Delay [s/veh]	12.37			11.51			0.15			0.57		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.66											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Kansas/State

Control Type:	Two-way stop	Delay (sec / veh):	328.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.813

Intersection Setup

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

Volumes

Name	Kansas			Kansas			State			State		
Base Volume Input [veh/h]	80	19	241	3	5	10	10	180	263	122	216	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	19	241	3	5	10	10	180	263	122	216	10
Peak Hour Factor	0.6330	0.6330	0.6330	0.5630	0.5630	0.5630	0.6730	0.6730	0.6730	0.8660	0.8660	0.8660
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	8	95	1	2	4	4	67	98	35	62	3
Total Analysis Volume [veh/h]	126	30	381	5	9	18	15	267	391	141	249	12
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.81	0.16	0.64	0.13	0.06	0.02	0.01	0.00	0.00	0.15	0.00	0.00
d_M, Delay for Movement [s/veh]	328.22	324.28	311.01	103.76	36.39	16.01	7.78	0.00	0.00	9.05	0.00	0.00
Movement LOS	F	F	F	F	E	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	31.75	31.75	31.75	0.77	0.77	0.77	0.03	0.03	0.03	0.26	0.26	0.26
95th-Percentile Queue Length [ft/ln]	793.64	793.64	793.64	19.36	19.36	19.36	0.71	0.71	0.71	6.43	6.43	6.43
d_A, Approach Delay [s/veh]	315.79			35.45			0.17			3.17		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	104.69											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Tennessee/Park

Control Type:	Signalized	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.354

Intersection Setup

Name	Tennessee			Tennessee			Park			Park		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			Park			Park		
Base Volume Input [veh/h]	89	648	59	38	526	115	60	82	50	20	81	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	648	59	38	526	115	60	82	50	20	81	7
Peak Hour Factor	0.8420	0.8420	0.8420	0.7530	0.7530	0.7530	0.9030	0.9030	0.9030	0.6400	0.6400	0.6400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	192	18	13	175	38	17	23	14	8	32	3
Total Analysis Volume [veh/h]	106	770	70	50	699	153	66	91	55	31	127	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	38	0	0	38	0	0	27	0	0	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	46	46	46	46	46	46	11	11	11	11
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.16	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.18	0.25	0.25	0.08	0.26	0.26	0.06	0.09	0.03	0.08
s, saturation flow rate [veh/h]	583	1683	1634	589	1683	1580	1126	1578	1118	1660
c, Capacity [veh/h]	423	1200	1165	429	1200	1126	211	259	201	272
d1, Uniform Delay [s]	8.53	3.59	3.59	7.48	3.63	3.63	28.66	25.02	28.24	24.77
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.41	0.82	0.85	0.55	0.86	0.92	0.84	1.92	0.35	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.36	0.36	0.12	0.37	0.37	0.31	0.56	0.15	0.51
d, Delay for Lane Group [s/veh]	9.94	4.41	4.44	8.04	4.49	4.55	29.50	26.94	28.60	26.22
Lane Group LOS	A	A	A	A	A	A	C	C	C	C
Critical Lane Group	No	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.88	1.59	1.56	0.34	1.39	1.33	1.00	2.10	0.46	1.95
50th-Percentile Queue Length [ft/ln]	21.95	39.87	38.91	8.42	34.85	33.17	24.99	52.51	11.41	48.65
95th-Percentile Queue Length [veh/ln]	1.58	2.87	2.80	0.61	2.51	2.39	1.80	3.78	0.82	3.50
95th-Percentile Queue Length [ft/ln]	39.52	71.77	70.04	15.16	62.73	59.70	44.98	94.52	20.54	87.57

Movement, Approach, & Intersection Results

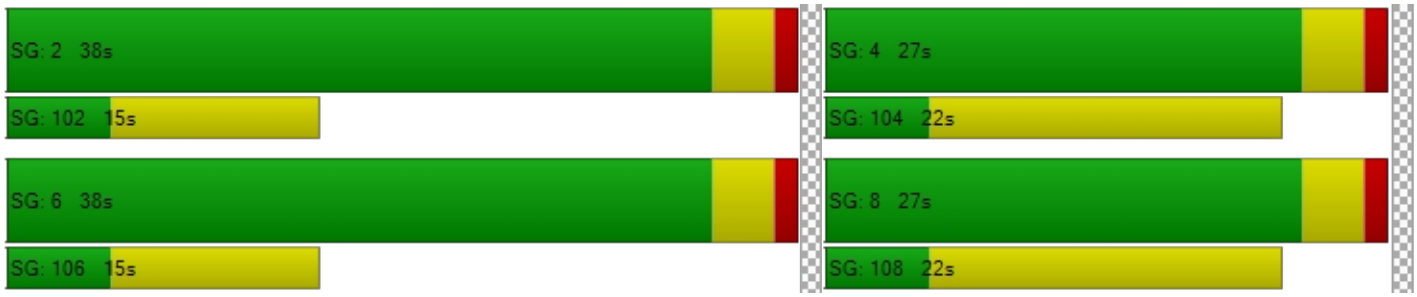
d_M, Delay for Movement [s/veh]	9.94	4.43	4.44	8.04	4.51	4.55	29.50	26.94	26.94	28.60	26.22	26.22
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.05			4.72			27.74			26.66		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	8.71											
Intersection LOS	A											
Intersection V/C	0.354											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.12	24.12	24.12	24.12
l_p,int, Pedestrian LOS Score for Intersection	2.666	2.833	2.270	2.120
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1046	1046	708	708
d_b, Bicycle Delay [s]	7.39	7.39	13.57	13.57
l_b,int, Bicycle LOS Score for Intersection	2.340	2.304	1.909	1.838
Bicycle LOS	B	B	A	A

Sequence

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



Intersection Level Of Service Report
Intersection 4: Tennessee/State

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.505

Intersection Setup

Name	Tennessee			Tennessee			State			State		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			State			State		
Base Volume Input [veh/h]	108	544	77	35	443	79	192	130	149	116	164	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	544	77	35	443	79	192	130	149	116	164	69
Peak Hour Factor	0.8700	0.8700	0.8700	0.8040	0.8040	0.8040	0.6930	0.6930	0.6930	0.7530	0.7530	0.7530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	156	22	11	138	25	69	47	54	39	54	23
Total Analysis Volume [veh/h]	124	625	89	44	551	98	277	188	215	154	218	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	29	0	0	29	0	0	31	0	0	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	25	25	25	27	27	27	27
g / C, Green / Cycle	0.42	0.42	0.42	0.42	0.42	0.42	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.18	0.22	0.22	0.07	0.20	0.20	0.29	0.26	0.17	0.19
s, saturation flow rate [veh/h]	704	1683	1611	663	1683	1596	962	1538	884	1599
c, Capacity [veh/h]	291	701	671	269	701	665	400	692	329	720
d1, Uniform Delay [s]	20.91	13.03	13.04	19.31	12.72	12.73	21.19	12.30	21.15	11.26
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.53	2.75	2.87	1.30	2.29	2.43	2.77	0.78	1.03	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.52	0.52	0.16	0.47	0.48	0.69	0.58	0.47	0.43
d, Delay for Lane Group [s/veh]	25.44	15.78	15.91	20.61	15.01	15.17	23.97	13.08	22.18	11.67
Lane Group LOS	C	B	B	C	B	B	C	B	C	B
Critical Lane Group	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.76	3.51	3.38	0.55	3.09	2.97	3.78	3.58	1.93	2.50
50th-Percentile Queue Length [ft/ln]	44.11	87.69	84.58	13.73	77.28	74.28	94.60	89.52	48.20	62.44
95th-Percentile Queue Length [veh/ln]	3.18	6.31	6.09	0.99	5.56	5.35	6.81	6.45	3.47	4.50
95th-Percentile Queue Length [ft/ln]	79.40	157.84	152.25	24.71	139.10	133.70	170.29	161.13	86.76	112.39

Movement, Approach, & Intersection Results

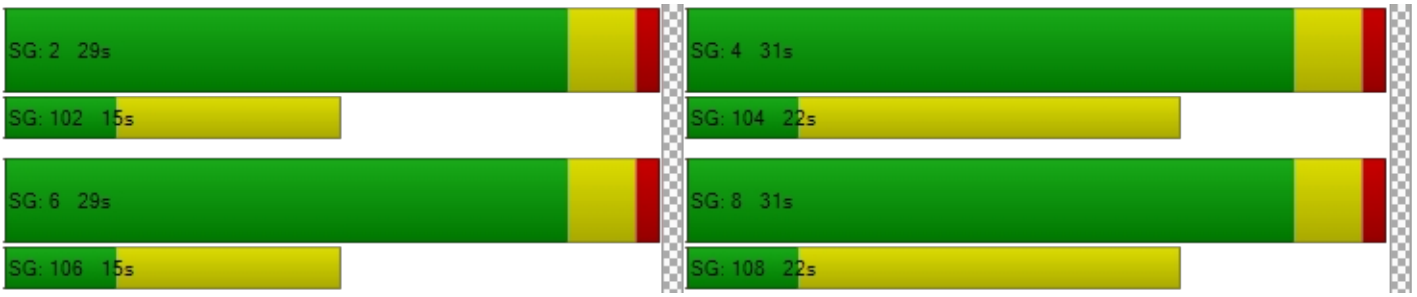
d_M, Delay for Movement [s/veh]	25.44	15.83	15.91	20.61	15.07	15.17	23.97	13.08	13.08	22.18	11.67	11.67
Movement LOS	C	B	B	C	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	17.26			15.44			17.51			15.16		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	16.49											
Intersection LOS	B											
Intersection V/C	0.505											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.957	3.113	2.461	2.239
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	833	900	900
d_b, Bicycle Delay [s]	10.21	10.21	9.08	9.08
l_b,int, Bicycle LOS Score for Intersection	2.251	2.131	2.682	2.325
Bicycle LOS	B	B	B	B

Sequence

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



301 Tennessee Street Industrial

Vistro File: C:\...\Vistro - Updated.vistro
Report File: C:\...\Existing AM.pdf

Scenario 1 Existing AM
10/17/2022

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Kansas/Park	16	8	14	5	12	21	4	172	13	18	214	5	502

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Kansas/State	80	19	241	3	5	10	10	180	263	122	216	10	1159

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Tennessee/Park	89	648	59	38	526	115	60	82	50	20	81	7	1775

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Tennessee/State	108	544	77	35	443	79	192	130	149	116	164	69	2106

301 Tennessee Street Industrial

Vistro File: C:\...\Vistro - Updated.vistro
Report File: C:\...\Existing PM.pdf

Scenario 2 Existing PM
10/17/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Kansas/Park	Two-way stop	HCM 7th Edition	NB Left	0.025	13.0	B
2	Kansas/State	Two-way stop	HCM 7th Edition	SB Left	0.029	17.1	C
3	Tennessee/Park	Signalized	HCM 7th Edition	WB Left	0.347	10.6	B
4	Tennessee/State	Signalized	HCM 7th Edition	WB Left	0.399	12.1	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Kansas/Park

Control Type:	Two-way stop	Delay (sec / veh):	13.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

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

Volumes

Name	Kansas			Kansas			Park			Park		
Base Volume Input [veh/h]	9	9	2	2	4	9	7	219	5	2	120	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	9	2	2	4	9	7	219	5	2	120	4
Peak Hour Factor	0.7310	0.7310	0.7310	0.4410	0.4410	0.4410	0.7840	0.7840	0.7840	0.7880	0.7880	0.7880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	1	1	2	5	2	70	2	1	38	1
Total Analysis Volume [veh/h]	12	12	3	5	9	20	9	279	6	3	152	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.00	0.01	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.98	12.74	10.16	12.70	12.63	9.33	7.54	0.00	0.00	7.82	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.17	0.16	0.16	0.16	0.02	0.02	0.02	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	4.24	4.24	4.24	4.03	4.03	4.03	0.38	0.38	0.38	0.13	0.13	0.13
d_A, Approach Delay [s/veh]	12.56			10.70			0.23			0.15		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	1.54											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Kansas/State

Control Type:	Two-way stop	Delay (sec / veh):	17.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

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

Volumes

Name	Kansas			Kansas			State			State		
Base Volume Input [veh/h]	32	12	87	6	2	10	4	198	32	45	118	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	12	87	6	2	10	4	198	32	45	118	5
Peak Hour Factor	0.5370	0.5370	0.5370	0.6540	0.6540	0.6540	0.8240	0.8240	0.8240	0.9490	0.9490	0.9490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	6	41	2	1	4	1	60	10	12	31	1
Total Analysis Volume [veh/h]	60	22	162	9	3	15	5	240	39	47	124	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.05	0.21	0.03	0.01	0.02	0.00	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	16.60	16.50	13.23	17.12	13.45	9.28	7.48	0.00	0.00	7.86	0.00	0.00
Movement LOS	C	C	B	C	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.84	1.84	1.84	0.17	0.17	0.17	0.01	0.01	0.01	0.08	0.08	0.08
95th-Percentile Queue Length [ft/ln]	46.03	46.03	46.03	4.13	4.13	4.13	0.21	0.21	0.21	2.03	2.03	2.03
d_A, Approach Delay [s/veh]	14.36			12.36			0.13			2.10		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	5.80											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Tennessee/Park

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.347

Intersection Setup

Name	Tennessee			Tennessee			Park			Park		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			Park			Park		
Base Volume Input [veh/h]	66	472	38	10	464	56	123	126	99	19	58	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	472	38	10	464	56	123	126	99	19	58	30
Peak Hour Factor	0.8150	0.8150	0.8150	0.9080	0.9080	0.9080	0.9080	0.9080	0.9080	0.8980	0.8980	0.8980
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	145	12	3	128	15	34	35	27	5	16	8
Total Analysis Volume [veh/h]	81	579	47	11	511	62	135	139	109	21	65	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	27	0	0	27	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40	40	40	40	40	40	12	12	12	12
g / C, Green / Cycle	0.66	0.66	0.66	0.66	0.66	0.66	0.21	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.19	0.02	0.17	0.17	0.12	0.16	0.02	0.06
s, saturation flow rate [veh/h]	755	1683	1639	719	1683	1620	1167	1562	1018	1589
c, Capacity [veh/h]	501	1107	1078	476	1107	1066	308	326	196	332
d1, Uniform Delay [s]	8.25	4.33	4.33	7.76	4.25	4.25	23.89	22.32	26.23	20.01
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.69	0.65	0.67	0.09	0.58	0.61	0.98	3.65	0.24	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.29	0.29	0.02	0.26	0.26	0.44	0.76	0.11	0.30
d, Delay for Lane Group [s/veh]	8.94	4.98	5.00	7.84	4.83	4.86	24.87	25.97	26.47	20.50
Lane Group LOS	A	A	A	A	A	A	C	C	C	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.58	1.29	1.27	0.07	1.00	0.98	1.78	3.37	0.28	1.12
50th-Percentile Queue Length [ft/ln]	14.55	32.33	31.69	1.71	25.10	24.51	44.55	84.34	7.06	28.08
95th-Percentile Queue Length [veh/ln]	1.05	2.33	2.28	0.12	1.81	1.76	3.21	6.07	0.51	2.02
95th-Percentile Queue Length [ft/ln]	26.19	58.19	57.05	3.07	45.19	44.12	80.19	151.81	12.70	50.54

Movement, Approach, & Intersection Results

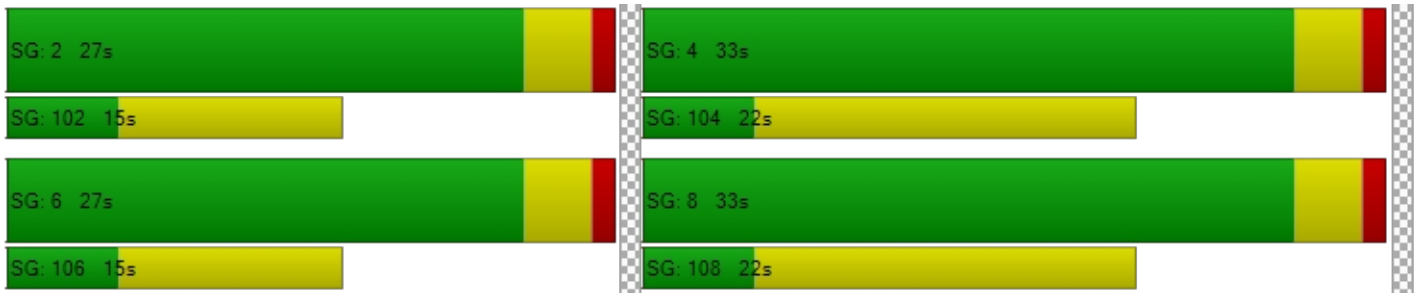
d_M, Delay for Movement [s/veh]	8.94	4.99	5.00	7.84	4.84	4.86	24.87	25.97	25.97	26.47	20.50	20.50
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.44			4.90			25.58			21.55		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	10.64											
Intersection LOS	B											
Intersection V/C	0.347											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.573	2.819	2.228	2.039
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767	967	967
d_b, Bicycle Delay [s]	11.41	11.41	8.01	8.01
l_b,int, Bicycle LOS Score for Intersection	2.143	2.041	2.192	1.756
Bicycle LOS	B	B	B	A

Sequence

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



Intersection Level Of Service Report
Intersection 4: Tennessee/State

Control Type:	Signalized	Delay (sec / veh):	12.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.399

Intersection Setup

Name	Tennessee			Tennessee			State			State		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			State			State		
Base Volume Input [veh/h]	38	372	35	53	473	37	74	112	125	35	83	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	38	372	35	53	473	37	74	112	125	35	83	56
Peak Hour Factor	0.8460	0.8460	0.8460	0.8250	0.8250	0.8250	0.7210	0.7210	0.7210	0.8830	0.8830	0.8830
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	110	10	16	143	11	26	39	43	10	23	16
Total Analysis Volume [veh/h]	45	440	41	64	573	45	103	155	173	40	94	63
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	21	0	0	21	0	0	39	0	0	39	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	34	34	34	34	18	18	18	18
g / C, Green / Cycle	0.57	0.57	0.57	0.57	0.57	0.57	0.30	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.06	0.14	0.15	0.08	0.19	0.19	0.09	0.21	0.04	0.10
s, saturation flow rate [veh/h]	725	1683	1633	822	1683	1640	1106	1540	947	1572
c, Capacity [veh/h]	437	949	921	501	949	925	326	467	189	476
d1, Uniform Delay [s]	10.10	6.68	6.68	9.38	7.01	7.02	21.92	18.52	26.91	16.19
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	0.65	0.68	0.53	0.93	0.96	0.55	1.95	0.55	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.26	0.26	0.13	0.33	0.33	0.32	0.70	0.21	0.33
d, Delay for Lane Group [s/veh]	10.57	7.33	7.36	9.91	7.94	7.98	22.47	20.46	27.46	16.59
Lane Group LOS	B	A	A	A	A	A	C	C	C	B
Critical Lane Group	No	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.35	1.28	1.26	0.46	1.75	1.71	1.27	3.90	0.55	1.58
50th-Percentile Queue Length [ft/ln]	8.63	32.10	31.51	11.52	43.64	42.81	31.65	97.57	13.87	39.52
95th-Percentile Queue Length [veh/ln]	0.62	2.31	2.27	0.83	3.14	3.08	2.28	7.02	1.00	2.85
95th-Percentile Queue Length [ft/ln]	15.54	57.78	56.73	20.74	78.55	77.06	56.97	175.62	24.96	71.13

Movement, Approach, & Intersection Results

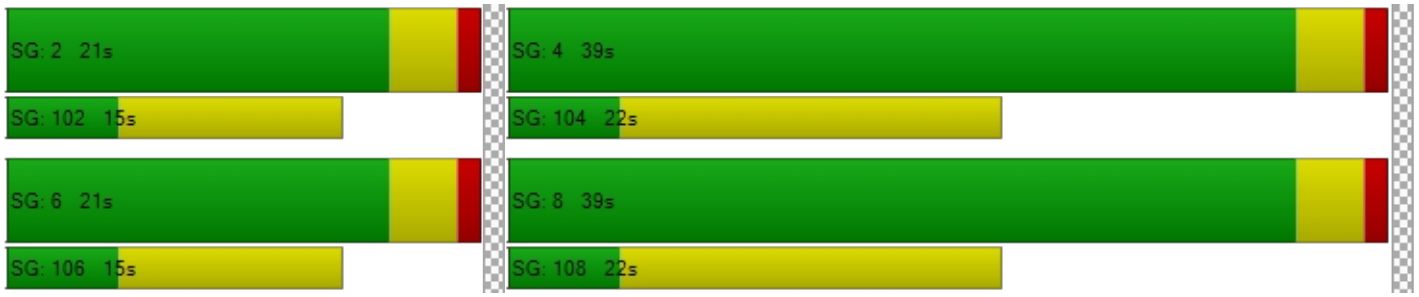
d_M, Delay for Movement [s/veh]	10.57	7.35	7.36	9.91	7.96	7.98	22.47	20.46	20.46	27.46	16.59	16.59
Movement LOS	B	A	A	A	A	A	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	7.62			8.14			20.94			18.80		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	12.14											
Intersection LOS	B											
Intersection V/C	0.399											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.679	2.762	2.185	2.160
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	567	1167	1167
d_b, Bicycle Delay [s]	15.41	15.41	5.21	5.21
l_b,int, Bicycle LOS Score for Intersection	1.994	2.122	2.271	1.885
Bicycle LOS	A	B	B	A

Sequence

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



301 Tennessee Street Industrial

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Report File: C:\...\Existing PM.pdf

Scenario 2 Existing PM
10/17/2022

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Kansas/Park	9	9	2	2	4	9	7	219	5	2	120	4	392

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Kansas/State	32	12	87	6	2	10	4	198	32	45	118	5	551

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Tennessee/Park	66	472	38	10	464	56	123	126	99	19	58	30	1561

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Tennessee/State	38	372	35	53	473	37	74	112	125	35	83	56	1493

301 Tennessee Street Industrial

Vistro File: F:\Vistro - Updated.vistro
Report File: C:\...\Existing Plus Project AM.pdf

Scenario 3 Existing Plus Project AM
2/20/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Kansas/Park	Two-way stop	HCM 7th Edition	NB Left	0.017	13.9	B
2	Kansas/State	Two-way stop	HCM 7th Edition	NB Left	0.813	328.2	F
3	Tennessee/Park	Signalized	HCM 7th Edition	EB Left	0.359	8.7	A
4	Tennessee/State	Signalized	HCM 7th Edition	NB Left	0.506	16.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Kansas/Park

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

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

Volumes

Name	Kansas			Kansas			Park			Park		
Base Volume Input [veh/h]	16	8	14	5	12	21	4	172	13	18	214	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	-11	-2	0	0	3	0	0	0	22	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	6	14	5	15	21	4	172	35	18	214	5
Peak Hour Factor	0.6940	0.6940	0.6940	0.6610	0.6610	0.6610	0.9220	0.9220	0.9220	0.9310	0.9310	0.9310
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	2	5	2	6	8	1	47	9	5	57	1
Total Analysis Volume [veh/h]	7	9	20	8	23	32	4	187	38	19	230	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.02	0.02	0.05	0.04	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	13.89	13.02	9.69	13.69	13.54	10.20	7.71	0.00	0.00	7.70	0.00	0.00
Movement LOS	B	B	A	B	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.19	0.36	0.36	0.36	0.01	0.01	0.01	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	4.74	4.74	4.74	8.96	8.96	8.96	0.17	0.17	0.17	0.80	0.80	0.80
d_A, Approach Delay [s/veh]	11.34			11.86			0.13			0.58		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	2.29											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Kansas/State

Control Type:	Two-way stop	Delay (sec / veh):	328.2
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.813

Intersection Setup

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

Volumes

Name	Kansas			Kansas			State			State		
Base Volume Input [veh/h]	80	19	241	3	5	10	10	180	263	122	216	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	19	241	3	5	10	10	180	263	122	216	10
Peak Hour Factor	0.6330	0.6330	0.6330	0.5630	0.5630	0.5630	0.6730	0.6730	0.6730	0.8660	0.8660	0.8660
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	8	95	1	2	4	4	67	98	35	62	3
Total Analysis Volume [veh/h]	126	30	381	5	9	18	15	267	391	141	249	12
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.81	0.16	0.64	0.13	0.06	0.02	0.01	0.00	0.00	0.15	0.00	0.00
d_M, Delay for Movement [s/veh]	328.22	324.28	311.01	103.76	36.39	16.01	7.78	0.00	0.00	9.05	0.00	0.00
Movement LOS	F	F	F	F	E	C	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	31.75	31.75	31.75	0.77	0.77	0.77	0.03	0.03	0.03	0.26	0.26	0.26
95th-Percentile Queue Length [ft/ln]	793.64	793.64	793.64	19.36	19.36	19.36	0.71	0.71	0.71	6.43	6.43	6.43
d_A, Approach Delay [s/veh]	315.79			35.45			0.17			3.17		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	104.69											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 3: Tennessee/Park

Control Type:	Signalized	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.359

Intersection Setup

Name	Tennessee			Tennessee			Park			Park		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			Park			Park		
Base Volume Input [veh/h]	89	648	59	38	526	115	60	82	50	20	81	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	-3	0	0	13	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	89	645	59	38	539	115	60	82	50	20	81	7
Peak Hour Factor	0.8420	0.8420	0.8420	0.7530	0.7530	0.7530	0.9030	0.9030	0.9030	0.6400	0.6400	0.6400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	192	18	13	179	38	17	23	14	8	32	3
Total Analysis Volume [veh/h]	106	766	70	50	716	153	66	91	55	31	127	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	65
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	38	0	0	38	0	0	27	0	0	27	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	65	65	65	65	65	65	65	65	65	65
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	46	46	46	46	46	46	11	11	11	11
g / C, Green / Cycle	0.71	0.71	0.71	0.71	0.71	0.71	0.16	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.18	0.25	0.25	0.08	0.27	0.27	0.06	0.09	0.03	0.08
s, saturation flow rate [veh/h]	573	1683	1634	591	1683	1582	1126	1578	1118	1660
c, Capacity [veh/h]	417	1200	1165	431	1200	1127	211	259	201	272
d1, Uniform Delay [s]	8.68	3.58	3.58	7.46	3.65	3.65	28.66	25.02	28.24	24.77
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.47	0.82	0.84	0.55	0.89	0.95	0.84	1.92	0.35	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.35	0.35	0.12	0.37	0.37	0.31	0.56	0.15	0.51
d, Delay for Lane Group [s/veh]	10.15	4.40	4.43	8.01	4.55	4.60	29.50	26.94	28.60	26.22
Lane Group LOS	B	A	A	A	A	A	C	C	C	C
Critical Lane Group	No	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.89	1.58	1.55	0.34	1.43	1.36	1.00	2.10	0.46	1.95
50th-Percentile Queue Length [ft/ln]	22.29	39.61	38.66	8.40	35.81	34.10	24.99	52.51	11.41	48.65
95th-Percentile Queue Length [veh/ln]	1.60	2.85	2.78	0.60	2.58	2.46	1.80	3.78	0.82	3.50
95th-Percentile Queue Length [ft/ln]	40.12	71.30	69.59	15.11	64.45	61.38	44.98	94.52	20.54	87.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.15	4.41	4.43	8.01	4.57	4.60	29.50	26.94	26.94	28.60	26.22	26.22
Movement LOS	B	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.06			4.76			27.74			26.66		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	8.71											
Intersection LOS	A											
Intersection V/C	0.359											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.12	24.12	24.12	24.12
l_p,int, Pedestrian LOS Score for Intersection	2.669	2.837	2.270	2.120
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1046	1046	708	708
d_b, Bicycle Delay [s]	7.39	7.39	13.57	13.57
l_b,int, Bicycle LOS Score for Intersection	2.337	2.318	1.909	1.838
Bicycle LOS	B	B	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 4: Tennessee/State

Control Type:	Signalized	Delay (sec / veh):	16.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.506

Intersection Setup

Name	Tennessee			Tennessee			State			State		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			State			State		
Base Volume Input [veh/h]	108	544	77	35	443	79	192	130	149	116	164	69
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	2	0	-1	-1	0	0	0	0	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	546	77	34	442	79	192	130	149	116	164	71
Peak Hour Factor	0.8700	0.8700	0.8700	0.8040	0.8040	0.8040	0.6930	0.6930	0.6930	0.7530	0.7530	0.7530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	157	22	11	137	25	69	47	54	39	54	24
Total Analysis Volume [veh/h]	125	628	89	42	550	98	277	188	215	154	218	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	29	0	0	29	0	0	31	0	0	31	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	25	25	25	27	27	27	27
g / C, Green / Cycle	0.42	0.42	0.42	0.42	0.42	0.42	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.18	0.22	0.22	0.06	0.20	0.20	0.29	0.26	0.17	0.20
s, saturation flow rate [veh/h]	705	1683	1611	661	1683	1596	961	1538	884	1598
c, Capacity [veh/h]	291	701	671	268	701	665	398	692	329	719
d1, Uniform Delay [s]	20.93	13.05	13.05	19.29	12.72	12.73	21.27	12.30	21.15	11.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.58	2.77	2.90	1.24	2.28	2.43	2.83	0.78	1.03	0.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.52	0.52	0.16	0.47	0.48	0.70	0.58	0.47	0.43
d, Delay for Lane Group [s/veh]	25.51	15.82	15.95	20.54	15.00	15.16	24.10	13.08	22.18	11.69
Lane Group LOS	C	B	B	C	B	B	C	B	C	B
Critical Lane Group	No	No	Yes	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.78	3.53	3.40	0.52	3.08	2.97	3.80	3.58	1.93	2.52
50th-Percentile Queue Length [ft/ln]	44.54	88.20	85.08	13.08	77.12	74.13	94.97	89.52	48.20	62.96
95th-Percentile Queue Length [veh/ln]	3.21	6.35	6.13	0.94	5.55	5.34	6.84	6.45	3.47	4.53
95th-Percentile Queue Length [ft/ln]	80.17	158.76	153.15	23.54	138.82	133.43	170.95	161.13	86.76	113.33

Movement, Approach, & Intersection Results

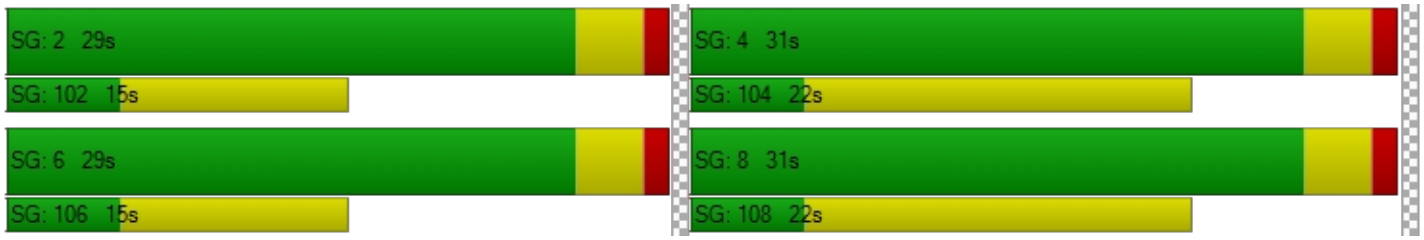
d_M, Delay for Movement [s/veh]	25.51	15.87	15.95	20.54	15.06	15.16	24.10	13.08	13.08	22.18	11.69	11.69
Movement LOS	C	B	B	C	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	17.31			15.41			17.57			15.16		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	16.51											
Intersection LOS	B											
Intersection V/C	0.506											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.957	3.114	2.463	2.236
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	833	900	900
d_b, Bicycle Delay [s]	10.21	10.21	9.08	9.08
l_b,int, Bicycle LOS Score for Intersection	2.254	2.129	2.682	2.329
Bicycle LOS	B	B	B	B

Sequence

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



301 Tennessee Street Industrial

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Scenario 3 Existing Plus Project AM
2/20/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Kansas/Park	5	6	14	5	15	21	4	172	35	18	214	5	514

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Kansas/State	80	19	241	3	5	10	10	180	263	122	216	10	1159

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Tennessee/Park	89	645	59	38	539	115	60	82	50	20	81	7	1785

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Tennessee/State	109	546	77	34	442	79	192	130	149	116	164	71	2109

301 Tennessee Street Industrial

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Scenario 4 Existing Plus Project PM
2/20/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Kansas/Park	Two-way stop	HCM 7th Edition	NB Left	0.059	13.1	B
2	Kansas/State	Two-way stop	HCM 7th Edition	SB Left	0.029	17.1	C
3	Tennessee/Park	Signalized	HCM 7th Edition	WB Left	0.348	10.7	B
4	Tennessee/State	Signalized	HCM 7th Edition	WB Left	0.400	12.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Kansas/Park

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.059

Intersection Setup

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

Volumes

Name	Kansas			Kansas			Park			Park		
Base Volume Input [veh/h]	9	9	2	2	4	9	7	219	5	2	120	4
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	1	0	0	-4	0	0	0	-20	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	10	2	2	0	9	7	219	0	2	120	4
Peak Hour Factor	0.7310	0.7310	0.7310	0.4410	0.4410	0.4410	0.7840	0.7840	0.7840	0.7880	0.7880	0.7880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	3	1	1	0	5	2	70	0	1	38	1
Total Analysis Volume [veh/h]	29	14	3	5	0	20	9	279	0	3	152	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.03	0.00	0.01	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.08	13.02	10.46	12.57	12.44	9.20	7.54	0.00	0.00	7.81	0.00	0.00
Movement LOS	B	B	B	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.30	0.30	0.30	0.10	0.10	0.10	0.02	0.02	0.02	0.01	0.01	0.01
95th-Percentile Queue Length [ft/ln]	7.52	7.52	7.52	2.54	2.54	2.54	0.38	0.38	0.38	0.13	0.13	0.13
d_A, Approach Delay [s/veh]	12.89			9.87			0.24			0.15		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	1.79											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 2: Kansas/State

Control Type:	Two-way stop	Delay (sec / veh):	17.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

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

Volumes

Name	Kansas			Kansas			State			State		
Base Volume Input [veh/h]	32	12	87	6	2	10	4	198	32	45	118	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	12	87	6	2	10	4	198	32	45	118	5
Peak Hour Factor	0.5370	0.5370	0.5370	0.6540	0.6540	0.6540	0.8240	0.8240	0.8240	0.9490	0.9490	0.9490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	6	41	2	1	4	1	60	10	12	31	1
Total Analysis Volume [veh/h]	60	22	162	9	3	15	5	240	39	47	124	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.05	0.21	0.03	0.01	0.02	0.00	0.00	0.00	0.04	0.00	0.00
d_M, Delay for Movement [s/veh]	16.60	16.50	13.23	17.12	13.45	9.28	7.48	0.00	0.00	7.86	0.00	0.00
Movement LOS	C	C	B	C	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.84	1.84	1.84	0.17	0.17	0.17	0.01	0.01	0.01	0.08	0.08	0.08
95th-Percentile Queue Length [ft/ln]	46.03	46.03	46.03	4.13	4.13	4.13	0.21	0.21	0.21	2.03	2.03	2.03
d_A, Approach Delay [s/veh]	14.36			12.36			0.13			2.10		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	5.80											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: Tennessee/Park

Control Type:	Signalized	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name	Tennessee			Tennessee			Park			Park		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	50.00	100.00	100.00	50.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			Park			Park		
Base Volume Input [veh/h]	66	472	38	10	464	56	123	126	99	19	58	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	-12	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	474	38	10	452	56	123	126	99	19	58	30
Peak Hour Factor	0.8150	0.8150	0.8150	0.9080	0.9080	0.9080	0.9080	0.9080	0.9080	0.8980	0.8980	0.8980
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	145	12	3	124	15	34	35	27	5	16	8
Total Analysis Volume [veh/h]	81	582	47	11	498	62	135	139	109	21	65	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	27	0	0	27	0	0	33	0	0	33	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40	40	40	40	40	40	12	12	12	12
g / C, Green / Cycle	0.66	0.66	0.66	0.66	0.66	0.66	0.21	0.21	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.19	0.02	0.17	0.17	0.12	0.16	0.02	0.06
s, saturation flow rate [veh/h]	765	1683	1639	717	1683	1619	1167	1562	1018	1589
c, Capacity [veh/h]	507	1107	1078	475	1107	1065	308	326	196	332
d1, Uniform Delay [s]	8.16	4.33	4.34	7.77	4.23	4.23	23.89	22.32	26.23	20.01
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.67	0.66	0.67	0.09	0.56	0.59	0.98	3.65	0.24	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.29	0.29	0.02	0.26	0.26	0.44	0.76	0.11	0.30
d, Delay for Lane Group [s/veh]	8.83	4.99	5.01	7.86	4.79	4.82	24.87	25.97	26.47	20.50
Lane Group LOS	A	A	A	A	A	A	C	C	C	C
Critical Lane Group	No	No	Yes	No	No	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.58	1.30	1.28	0.07	0.98	0.95	1.78	3.37	0.28	1.12
50th-Percentile Queue Length [ft/ln]	14.41	32.52	31.88	1.71	24.41	23.83	44.55	84.34	7.06	28.08
95th-Percentile Queue Length [veh/ln]	1.04	2.34	2.30	0.12	1.76	1.72	3.21	6.07	0.51	2.02
95th-Percentile Queue Length [ft/ln]	25.94	58.54	57.39	3.08	43.94	42.90	80.19	151.81	12.70	50.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.83	5.00	5.01	7.86	4.80	4.82	24.87	25.97	25.97	26.47	20.50	20.50
Movement LOS	A	A	A	A	A	A	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	5.44			4.87			25.58			21.55		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	10.66											
Intersection LOS	B											
Intersection V/C	0.348											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.571	2.816	2.228	2.039
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767	967	967
d_b, Bicycle Delay [s]	11.41	11.41	8.01	8.01
l_b,int, Bicycle LOS Score for Intersection	2.145	2.031	2.192	1.756
Bicycle LOS	B	B	B	A

Sequence

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

Intersection Level Of Service Report
Intersection 4: Tennessee/State

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name	Tennessee			Tennessee			State			State		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00			40.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Tennessee			Tennessee			State			State		
Base Volume Input [veh/h]	38	372	35	53	473	37	74	112	125	35	83	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	-1	-2	0	1	1	0	0	0	0	0	0	-2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	370	35	54	474	37	74	112	125	35	83	54
Peak Hour Factor	0.8460	0.8460	0.8460	0.8250	0.8250	0.8250	0.7210	0.7210	0.7210	0.8830	0.8830	0.8830
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	109	10	16	144	11	26	39	43	10	23	15
Total Analysis Volume [veh/h]	44	437	41	65	575	45	103	155	173	40	94	61
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	24	0	0	24	0	0	36	0	0	36	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	17	0	0	17	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	L	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	37	37	37	37	37	37	15	15	15	15
g / C, Green / Cycle	0.61	0.61	0.61	0.61	0.61	0.61	0.26	0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.06	0.14	0.14	0.08	0.19	0.19	0.09	0.21	0.04	0.10
s, saturation flow rate [veh/h]	723	1683	1633	825	1683	1640	1108	1540	947	1574
c, Capacity [veh/h]	440	1023	993	507	1023	997	319	398	189	407
d1, Uniform Delay [s]	9.95	5.39	5.39	9.18	5.67	5.67	22.24	20.95	26.93	18.29
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.46	0.54	0.57	0.52	0.78	0.80	0.58	4.32	0.55	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.24	0.24	0.13	0.31	0.31	0.32	0.82	0.21	0.38
d, Delay for Lane Group [s/veh]	10.41	5.93	5.96	9.70	6.44	6.47	22.82	25.26	27.48	18.87
Lane Group LOS	B	A	A	A	A	A	C	C	C	B
Critical Lane Group	No	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.33	1.05	1.03	0.46	1.45	1.42	1.28	4.43	0.55	1.70
50th-Percentile Queue Length [ft/ln]	8.36	26.34	25.86	11.53	36.18	35.51	31.93	110.76	13.86	42.42
95th-Percentile Queue Length [veh/ln]	0.60	1.90	1.86	0.83	2.61	2.56	2.30	7.88	1.00	3.05
95th-Percentile Queue Length [ft/ln]	15.05	47.40	46.56	20.76	65.13	63.91	57.48	197.06	24.95	76.36

Movement, Approach, & Intersection Results

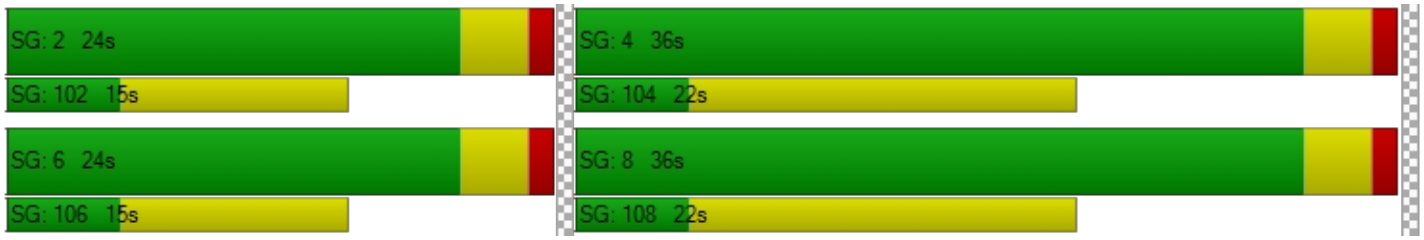
d_M, Delay for Movement [s/veh]	10.41	5.94	5.96	9.70	6.45	6.47	22.82	25.26	25.26	27.48	18.87	18.87
Movement LOS	B	A	A	A	A	A	C	C	C	C	B	B
d_A, Approach Delay [s/veh]	6.32			6.76			24.68			20.64		
Approach LOS	A			A			C			C		
d_I, Intersection Delay [s/veh]	12.33											
Intersection LOS	B											
Intersection V/C	0.400											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	21.68	21.68
l_p,int, Pedestrian LOS Score for Intersection	2.678	2.761	2.183	2.162
Crosswalk LOS	B	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	1067	1067
d_b, Bicycle Delay [s]	13.33	13.33	6.53	6.53
l_b,int, Bicycle LOS Score for Intersection	1.990	2.125	2.271	1.881
Bicycle LOS	A	B	B	A

Sequence

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



301 Tennessee Street Industrial

Vistro File: F:\Vistro - Updated.vistro
Report File: C:\...\Existing Plus Project PM.pdf

Scenario 4 Existing Plus Project PM
2/20/2023

Turning Movement Volume: Summary

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
1	Kansas/Park	21	10	2	2	0	9	7	219	0	2	120	4	396

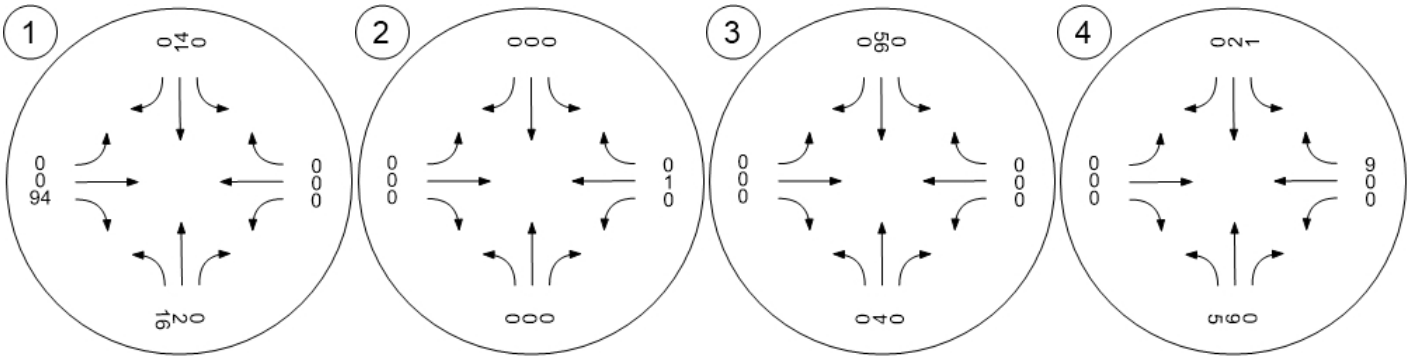
ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2	Kansas/State	32	12	87	6	2	10	4	198	32	45	118	5	551

ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
3	Tennessee/Park	66	474	38	10	452	56	123	126	99	19	58	30	1551

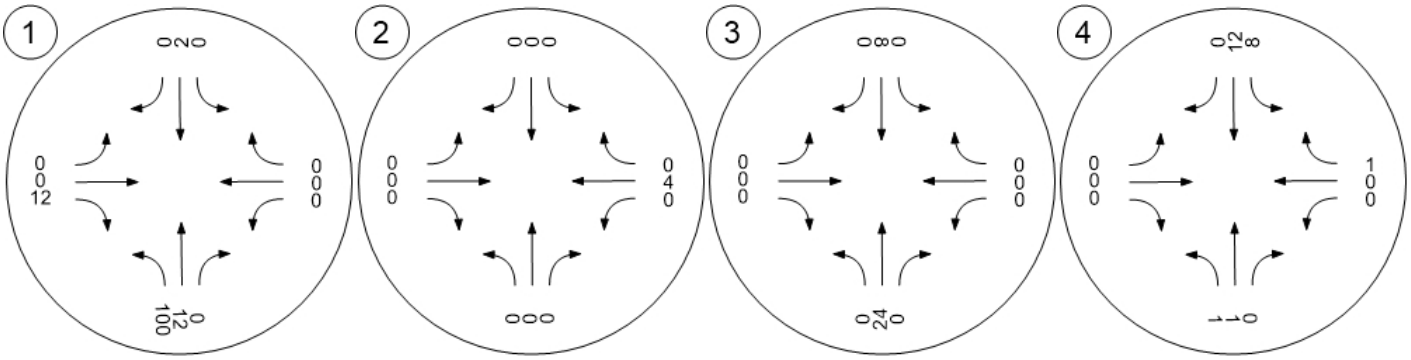
ID	Intersection Name	Northbound			Southbound			Eastbound			Westbound			Total Volume
		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
4	Tennessee/State	37	370	35	54	474	37	74	112	125	35	83	54	1490

Attachment D – Project Trip Assignment

Traffic Volume - Net New Site Trips



Traffic Volume - Net New Site Trips



Environment | Planning | Development Solutions, Inc.

Date:	January 30, 2023
Prepared by:	Hashem Basrawi
To:	City of Redlands
Site:	301 Tennessee Street, City of Redlands
Subject:	**Response to City Comments**

EPD is in receipt of the City's comments on the traffic documents (i.e., scoping agreement, VMT screening analysis, and Measure U focused traffic analysis) dated December 5, 2022 for the 301 Tennessee Street industrial project. The traffic documents have been updated in response to the City's comments. A response to each comment is provided below.

A. VMT Screening Analysis

Response to Comment: Per CEQA, the baseline conditions to be used for the analysis are the conditions as of the date of the Notice of Preparation (NOP). The existing buildings are currently occupied and therefore credit can be taken for the existing land use. Therefore, the VMT screening analysis is based on the net increase between the prior use and the proposed use.

B. Scoping Agreement

Response to Comment 1: A site access analysis of driveways as well as a discussion that includes the project truck routing to/from the site was included in the updated FTA.

Response to Comment 2: A separate VMT screening analysis has been submitted for CEQA purposes.

C. Measure U Focused Traffic Analysis

Response to Comment 1: The statement on page 11 (i.e., It is to be noted that existing trips for the manufacturing warehouse were removed) clarifies that since the proposed industrial project is replacing the existing manufacturing building, credit for the existing manufacturing warehouse trips was accounted. Furthermore, trips of the existing manufacturing warehouse were deducted from the trips of the proposed industrial project to reflect the net number of trips. Please note that it has been confirmed that the building was in full operations during the time the traffic counts were collected.

Response to Comment 2: The 5-minute delay at the Kansas Street/State Street two-way stop control intersection is due to the large existing volume of vehicles on the northbound and eastbound approaches. There are 340 vehicles (including 241 vehicles turning right) on the northbound approach during the worst AM peak hour. There are 453 vehicles (including 263 vehicles turning right and 180 heading through) on the eastbound approach during the worst AM peak hour. Please note that the Kansas Street/State Street intersection would not be heavily utilized by project trips; as a result, the project would not cause a delay impact at the intersection.

Response to Comment 3: The document has been updated to reflect the correct formatting.

If you have any questions or would like to discuss our responses, please contact me at (909) 525-0528 or at hashem@epdsolutions.com.