

East Street Village

Traffic Impact Study

TSC Capital Partners

Louisville, Colorado

June 2, 2023

Prepared By:



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East Street Village

Traffic Impact Study

1.0 Introduction

TSC Capital Partners is proposing to develop two parcels on the west side of East Street between Pine Street and Lock Street. The development will include 15 single family dwelling units and 21 townhomes. It is possible that 12 of the townhomes will have a separate one bedroom apartment, so the traffic study analyzed the additional impact of the apartments. A vicinity map is contained in Figure 1 that shows the location of the site. Figure 2 contains a site plan for the development. Two full movement accesses are planned from East Street into the development.

A meeting was held with the City staff on February 3, 2023 to discuss the parameters of the traffic study. Email correspondence from the meeting is contained in Appendix A.

This study has been prepared in conformance with the Colorado DOT traffic impact study requirements¹.

2.0 Project Description

2.1 Study Area

The study area includes the following intersections.

- SH 42 / Pine Street
- SH 42 / 96th Street / Lock Street
- Pine Street / East Street

The existing laneage and traffic control are contained in Figure 3. The roadways that border the site are described as follows.

SH 42 is classified by CDOT as an NR-A roadway with a 45 MPH speed limit in the vicinity of the site.

Pine Street is a two-lane collector street that extends west from SH 42 and provides connections to downtown and the west side of Louisville.

Lock Street is a short local street that begins at SH 42 and provides access to development west of SH 42 and south of Pine Street.

East Street is a two-lane local street that runs between Pine Street and Lock Street.

¹ [State Highway Access Code](#). The Transportation Commission of Colorado. March 2002.

2.2 Study Assumptions

The following assumptions were utilized for this study.

Short-Term Study Horizon. Year 2025 is assumed to be the short-term horizon because all of the homes are expected to be completed and occupied by the end of that year.

Long-Term Study Horizon. Year 2045 will be the long-term horizon because it is 20 years following the completion of the development.

Future Development. A vacant lot exists north of the East Street Village that was assumed to be developed with a 7,000 ft² fast casual restaurant. Based on the correspondence with the City staff, a fast casual restaurant was assumed because it is expected to generate more traffic than other possible uses for that lot. Traffic from the fast casual restaurant was included in the long-term background traffic volume scenario.

Growth in Background Traffic. Annual growth rates for arterial roadways were determined utilizing data from the Year 2050 DRCOG regional plan. The following annual growth rates were used in the study.

- SH 42 / 96th Street corridor – 1.1%
- SH 42 east of the SH 42 / 96th Street corridor – 1.2%

The Year 2020 volumes and Year 2050 projections provided by DRCOG are contained in Appendix B. The DRCOG data can be found at the following location.

<https://drcog.org/services-and-resources/data-maps-and-modeling/travel-modeling>

Saturation Flow Rate. The saturation flow rate was assumed to be 1,900 passenger cars / hour / lane.

Future 42 Improvements. The recommended improvements discussed in Table 9 of the Future 42² traffic study were assumed to be implemented by the Year 2045. They include four through lanes on the SH 42 / 96th Street corridor, revised laneage on the eastbound Pine Street approach to SH 42, and a two lane roundabout at Lock Street.

Peak Hour Factor (PHF). For the existing and the short-term planning horizons, the PHF was based on the data collected for the traffic study. At new approaches, the PHF was assumed to be 0.85 for all movements in all of the planning horizons. In the long-term horizon, the PHF was assumed to be 0.92 unless the existing PHF is higher than 0.92. In that case, the existing PHF was used in the analysis of the long-term volumes.

Signal Timing on SH 42. The timing of the signals on SH 42 was obtained from CDOT and used in the analysis.

² Future 42 – Appendix 1. Traffic Study. Kimley Horn. December 2022.

Truck Percentage. A truck percentage of 2% was assumed for all movements.

3.0 Year 2023 Traffic Volumes

Traffic count data were collected for the project on Thursday, February 23, 2023 by All Traffic Data. The traffic count data and email correspondence are contained in Appendix C. The Year 2023 peak hour volumes are summarized in Figures 4 and 5. Existing and future daily volumes are summarized in Table 1.

3.1 Level of Service Analysis

To evaluate the performance of the intersections within the study area, the level of service (LOS) was calculated using PTV VISTRO software. This software package utilizes criteria described in the Highway Capacity Manual³. LOS is a measure used to describe operational conditions at an intersection. LOS categories ranging from A to F are assigned based on the predicted delay in seconds per vehicle for the intersection as a whole, as well as for individual turning movements. LOS A indicates very good operations, and LOS F indicates poor, congested operations. In urban areas, LOS D is considered the minimum intersection operation.

The following table summarizes the analysis of the Year 2023 conditions. It shows that all of the intersections are currently operating at LOS C, or better. The level of service for intersections with side-street stop-control is determined by the movement with the highest delay value. The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix D.

Year 2023 Traffic Conditions

Intersection	Control	Peak Hour	
		Morning	Evening
1 - SH 42 / Pine Street	Signalized	B	C
2 - SH 42 / 96th Street / Lock Street	Signalized	C	C
3 - Pine Street / East Street	Side-Street Stop	B	B

4.0 Site Generated Traffic

4.1 Trip Generation

In order to estimate the traffic impacts associated with the development of the East Street Village, the amount of traffic generated by the proposed development was estimated using rates contained in the Institute of Transportation Engineers Trip Generation manual⁴. Table 3 includes the trip generation for two scenarios including Scenario 1 that includes apartments in 12 of the 21 townhomes, and Scenario 2 that does not include the apartments. Table 4 contains the trip generation for the fast casual restaurant.

³ Highway Capacity Manual, 7th Edition. National Academy of Sciences, Engineering, and Medicine. 2022.

⁴ Trip Generation, 11th Edition. Institute of Transportation Engineers. September 2021.

A 10% multimodal trip reduction was assumed in the trip generation estimates. This is a very conservative estimate for the residential land uses considering the proximity to Old Town and the RTD station at US 36 / McCaslin Boulevard. The site is a short bike ride from the RTD station. Working from home would also be included in this trip reduction. The trip reduction was assumed for the fast casual restaurant because of its proximity to Old Town and the residences around downtown.

4.2 Trip Distribution and Assignment

The trip distribution for the development is contained in Figure 6. It was based on the proximity of the site to major roadways in the area. The peak hour trip assignments are contained in Figures 7 through 12.

5.0 Year 2025 Traffic Conditions

The development is expected to be completed and occupied in the Year 2025. Background traffic volumes were developed by inflating the Year 2023 volumes by the growth rate that was discussed in Section 2.2. The background traffic volume scenarios are contained in Figures 13 and 14. Total traffic volume scenarios were developed by adding the trip assignment to the background traffic volume scenarios (see Figures 15 through 18).

The results of the analysis of the background and total traffic volume scenarios are summarized in the following table. It shows that all of the intersections are expected to operate at LOS C, or better. The analysis shows that the apartments in Scenario 1 will have no impact on the level of service. Figure 19 contains the laneage and traffic control assumed in the analysis of the total traffic volume scenarios. The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix D.

Year 2025 Traffic Conditions

Intersection	Control	Background		Total - Scenario 1		Total - Scenario 2	
		Morning	Evening	Morning	Evening	Morning	Evening
1 - SH 42 / Pine Street	Signalized	B	C	B	C	B	C
2 - SH 42 / 96th Street / Lock Street	Signalized	C	C	C	C	C	C
3 - Pine Street / East Street	Side-Street Stop	B	B	B	B	B	B
4 - East Street / North Access	Side-Street Stop	---		A	A	A	A
5 - East Street / South Access	Side-Street Stop	---		A	A	A	A

6.0 Year 2045 Traffic Conditions

The Year 2045 background and total traffic volume scenarios were determined as discussed in Section 6.0. The background traffic volume scenarios are contained in Figures 20 and 21, and the total traffic volume scenarios are contained in Figures 22 through 25.

The results of the analysis of the background and total traffic volume scenarios are summarized in the following table. It shows that all of the intersections are expected to operate at LOS A or LOS B. The analysis shows that the apartments in Scenario 1 will have no impact on the level of service. Figure 26 contains the laneage and traffic control assumed in the analysis of the total traffic volume scenarios. The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix D.

Year 2048 Traffic Conditions

Intersection	Control	Background		Total - Scenario 1		Total - Scenario 2	
		Morning	Evening	Morning	Evening	Morning	Evening
1 - SH 42 / Pine Street	Signalized	B	B	B	B	B	B
2 - SH 42 / 96th Street / Lock Street	Roundabout	A	A	A	A	A	A
3 - Pine Street / East Street	Side-Street Stop	B	B	B	B	B	B
4 - East Street / North Access	Side-Street Stop	---		A	A	A	A
5 - East Street / South Access	Side-Street Stop	---		A	A	A	A

7.0 Conclusions

STS has drawn the following conclusion based on the analysis performed for this project.

Intersection Operation. All of the intersections in this study area currently operating at acceptable levels of service and are expected to continue to operate at acceptable levels of service through the Year 2045. Therefore, this project will have minimal impact on the study area intersections. Additionally, the traffic from the 12 apartments in the townhomes will not impact the level of service.

Tables

Table 1 – Existing and Projected Daily Volumes

Table 2 – Intersection Operational Summary

Table 3 – Trip Generation Estimate – East Street Village

Table 4 – Trip Generation Estimate – Fast Casual Restaurant

Table 1. Existing and Projected Daily Traffic Volumes

Link	Year 2023 Traffic ¹	East Street Village Traffic	Year 2025		Fast Casual Restaurant Traffic	Year 2045	
			Background	Total		Background	Total
SH 42 north of Pine Street	17,590	120	17,930	18,050	240	21,610	21,730
SH 42 between Pine Street and Lock Street	15,577	60	15,880	15,940	60	19,180	19,240
96th Street South of Lock Street	15,000	90	15,290	15,380	180	18,440	18,530
Pine Street west of SH 42	6,030	30	6,030	6,060	240	6,270	6,300
Pine Street west of East Street	5,670	30	5,670	5,700	60	5,730	5,760
East Street south of Pine Street	770	60	770	830	310	1,080	1,140
Lock Street west of SH 42 / 96th Street	380	250	380	630	310	690	940
SH 42 east of 96th Street	7,400	60	7,580	7,640	120	9,560	9,620

Note

1. The Year 2023 volumes collected for the study are highlighted in yellow. All other existing volumes were estimated based on the peak hour to daily ratio for the evening peak hour.

Table 2. Intersection Operational Summary

Signalized Intersections ¹	Year 2023				Year 2025 Background				Year 2025 Total - Scenario 1				Year 2025 Total - Scenario 2				Year 2045 Background				Year 2045 Total - Scenario 1				Year 2045 Total - Scenario 2			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 - SH 42 / Pine Street	19.6	B	21.6	C	19.7	B	21.7	C	19.8	B	21.9	C	19.8	B	21.7	C	13.4	B	15.0	B	13.5	B	15.0	B	13.5	B	15.0	B
2 - SH 42 / 96th Street / Lock Street	30.5	C	31.8	C	31.1	C	32.7	C	30.9	C	31.5	C	30.5	C	31.3	C	---				---				---			
Stop-Controlled Intersections ¹	Year 2023				Year 2025 Background				Year 2025 Total - Scenario 1				Year 2025 Total - Scenario 2				Year 2045 Background				Year 2045 Total - Scenario 1				Year 2045 Total - Scenario 2			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3 - Pine Street / East Street	12.30	B	12.70	B	12.30	B	12.70	B	12.40	B	12.90	B	12.40	B	12.80	B	12.40	B	13.50	B	12.50	B	13.70	B	12.40	B	13.70	B
4 - East Street / North Access	NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		EBLT	
	---				---				8.70	A	9.10	A	8.70	A	9.00	A	---				8.80	A	9.30	A	8.70	A	9.30	A
									EBLT		EBLT		EBLT		EBLT						EBLT		EBLT		EBLT			
5 - East Street / South Access	---				---				8.80	A	9.10	A	8.80	A	9.10	A	---				8.80	A	9.40	A	8.80	A	9.30	A
									EBLT		EBLT		EBLT		EBLT						EBLT		EBLT		EBLT			
Roundabout ¹	Year 2023				Year 2025 Background				Year 2025 Total - Scenario 1				Year 2025 Total - Scenario 2				Year 2045 Background				Year 2045 Total - Scenario 1				Year 2045 Total - Scenario 2			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
2 - SH 42 / 96th Street / Lock Street	---				---				---				---				7.40	A	8.00	A	7.50	A	8.20	A	7.50	A	8.10	A

Notes

1. The level of service for intersections with side-street stop-control is determined by the movement with the highest delay value.
2. The level of service for signalized intersections and roundabouts is based on the delay for the entire intersection.

Table 3. Trip Generation Estimate - East Street Village

Scenario 1 - One Bedroom Apartments in 12 of the 21 Townhomes

Land Use ¹	ITE Code ²	Size	Unit	Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Single Family Detached Housing	210	15	DU	9.43	142	71	71	0.70	11	3	8	0.94	14	9	5
Multifamily (Low-Rise) (Not Close to Transit)	220	21	DU	6.74	142	71	71	0.40	8	2	6	0.51	11	7	4
Patio Home (One Bedroom Apartment)	210	12	DU	5.35	64	32	32	0.26	3	1	2	0.47	6	4	2
10% Multimodal Trip Reduction	---	---	---	---	-36	-17	-17	---	-2	-1	-1	---	-3	-2	-1
Total	---	---	---	---	312	156	156	---	20	5	15	---	28	18	10

Scenario 2 - No Apartments in the Townhomes

Land Use ¹	ITE Code ²	Size	Unit	Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Single Family Detached Housing	210	15	DU	9.43	142	71	71	0.70	11	3	8	0.94	14	9	5
Multifamily (Low-Rise) (Not Close to Transit)	220	21	DU	6.74	142	71	71	0.40	8	2	6	0.51	11	7	4
10% Multimodal Trip Reduction	---	---	---	---	-28	-14	-14	---	-2	-1	-1	---	-2	-2	-1
Total	---	---	---	---	256	128	128	---	17	4	13	---	22	14	8

Notes:

1. The assumed land uses were provided by Andy Johnson with DAJDESIGN.
2. The trip generation estimate is based on rates contained in [Trip Generation, 11th Edition](#) (Institute of Transportation Engineers, September 2021).
3. 12 of the townhomes will have a separate one bedroom apartment. The City agreed that the trip generation for a patio home was appropriate for this land use.

Table 4. Trip Generation Estimate - Fast Casual Restaurant

Land Use	ITE Code ¹	Size	Unit	Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Single Family Detached Housing	210	7	1,000 ft ²	97.14	680	340	340	1.43	10	5	5	12.55	88	48	40
10% Multimodal Trip Reduction	---	---	---	---	-68	-34	-34	---	-2	-1	-1	---	-9	-5	-4
Total	---	---	---	---	612	306	306	---	8	4	4	---	79	43	36

Notes:

1. The trip generation estimate is based on rates contained in [Trip Generation, 11th Edition](#) (Institute of Transportation Engineers, September 2021).

Figures

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Figure 3 – Laneage and Traffic Control – Existing

Figure 4 – Year 2023 Traffic Volumes – Morning Peak Hour

Figure 5 – Year 2023 Traffic Volumes – Evening Peak Hour

Figure 6 – Trip Distribution

Figure 7 – Scenario 1 Residential Trip Assignment – Morning Peak Hour

Figure 8 – Scenario 1 Residential Trip Assignment – Evening Peak Hour

Figure 9 – Scenario 2 Residential Trip Assignment – Morning Peak Hour

Figure 10 – Scenario 2 Residential Trip Assignment – Evening Peak Hour

Figure 11 – Fast Casual Restaurant Trip Assignment – Morning Peak Hour

Figure 12 – Fast Casual Restaurant Trip Assignment – Evening Peak Hour

Figure 13 – Year 2025 Background Traffic Volumes – Morning Peak Hour

Figure 14 – Year 2025 Background Traffic Volumes – Evening Peak Hour

Figure 15 – Year 2025 Total Traffic Volumes Scenario 1 Residential – Morning Peak Hour

Figure 16 – Year 2025 Total Traffic Volumes Scenario 1 Residential – Evening Peak Hour

Figure 17 – Year 2025 Total Traffic Volumes Scenario 2 Residential – Morning Peak Hour

Figure 18 – Year 2025 Total Traffic Volumes Scenario 2 Residential – Evening Peak Hour

Figure 19 – Laneage and Traffic Control – Year 2025

Figure 20 – Year 2045 Background Traffic Volumes – Morning Peak Hour

Figure 21 – Year 2045 Background Traffic Volumes – Evening Peak Hour

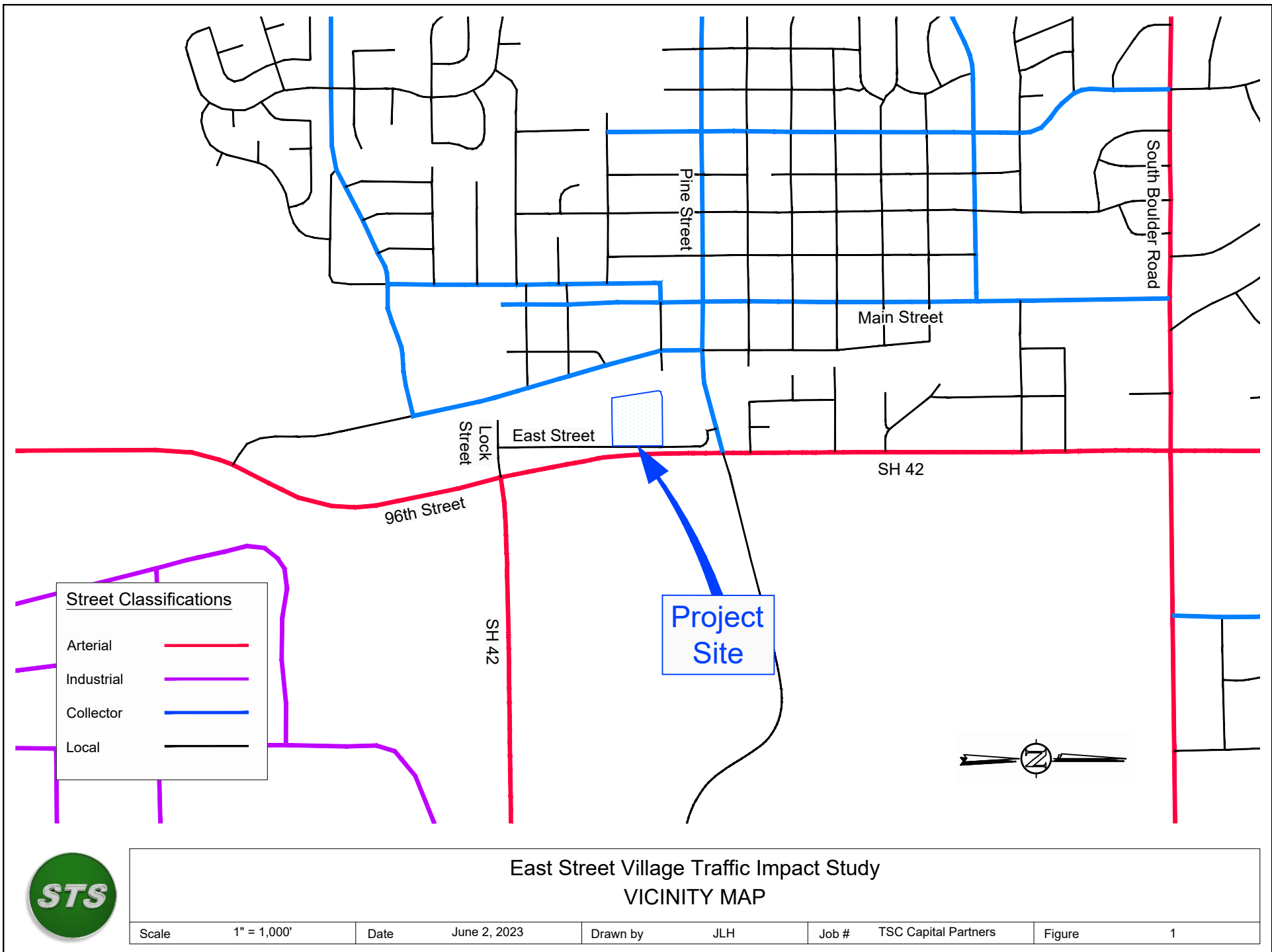
Figure 22 – Year 2045 Total Traffic Volumes Scenario 1 Residential – Morning Peak Hour

Figure 23 – Year 2045 Total Traffic Volumes Scenario 1 Residential – Evening Peak Hour

Figure 24 – Year 2045 Total Traffic Volumes Scenario 2 Residential – Morning Peak Hour

Figure 25 – Year 2045 Total Traffic Volumes Scenario 2 Residential – Evening Peak Hour

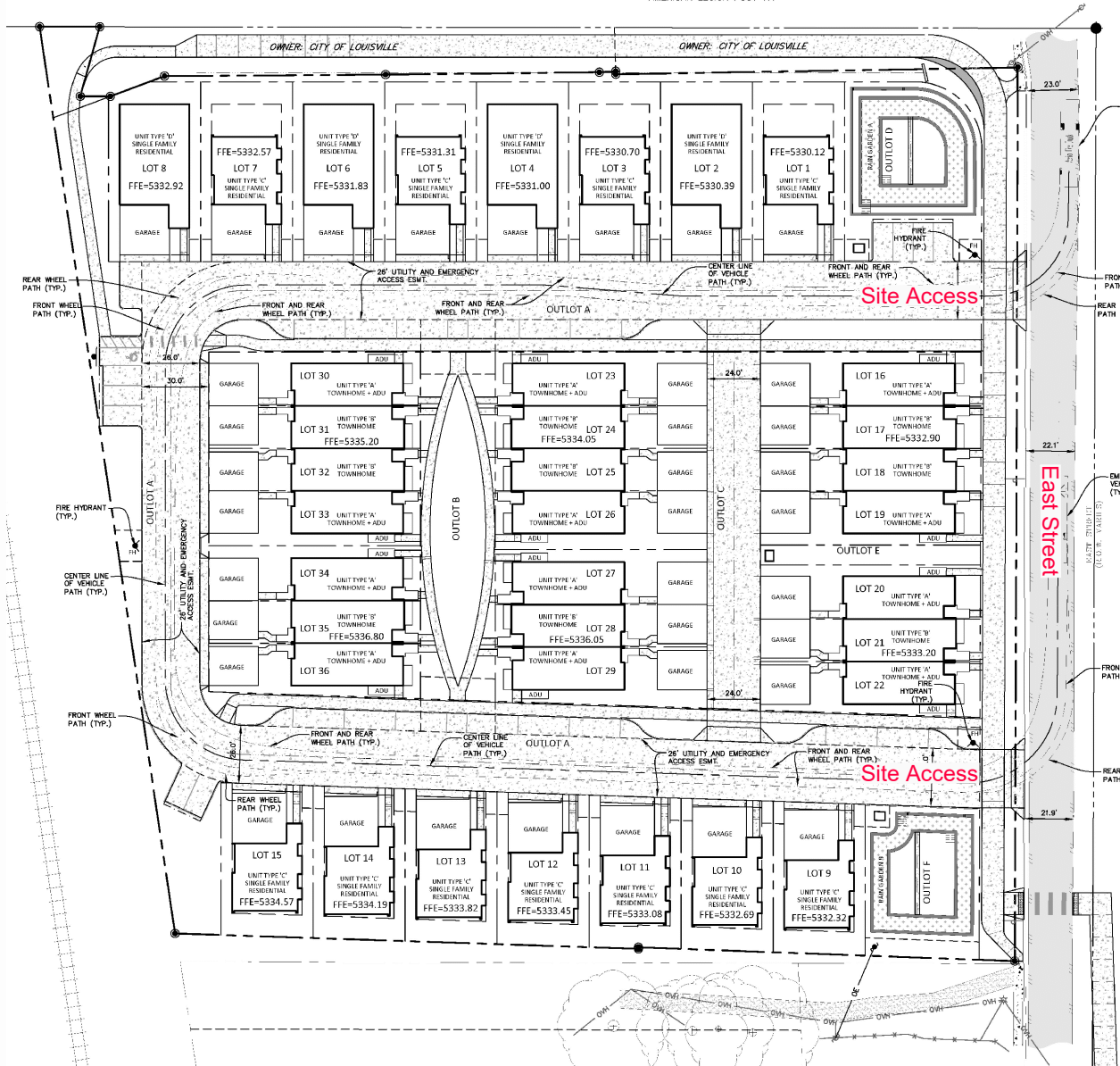
Figure 26 – Laneage and Traffic Control – Year 2045



OWNER: WALTER RHOADES
AMERICAN LEGION POST 111

OWNER: CITY OF LOUISVILLE

OWNER: CITY OF LOUISVILLE



East Street Village Traffic Impact Study SITE PLAN

Scale	NTS	Date	June 2, 2023	Drawn by	JLH	Job #	TSC Capital Partners	Figure	2
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Figure 3 – Laneage and Traffic Control – Existing

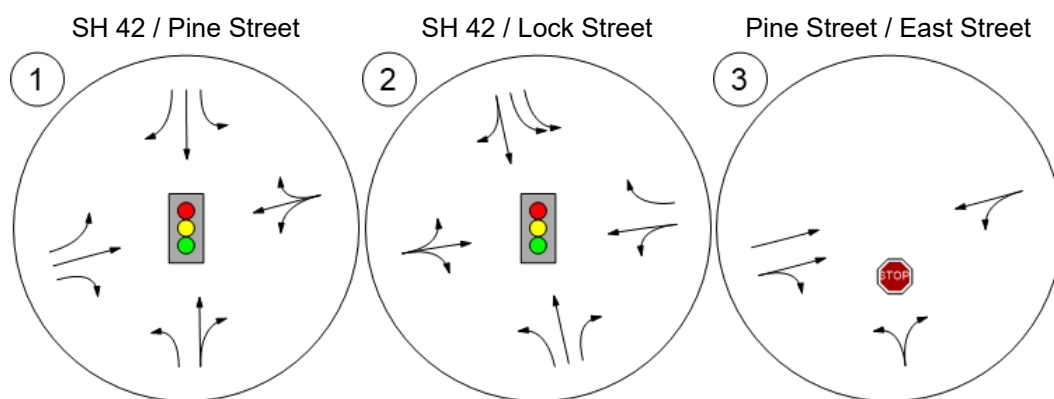


Figure 4 – Year 2023 Traffic Volumes – Morning Peak Hour

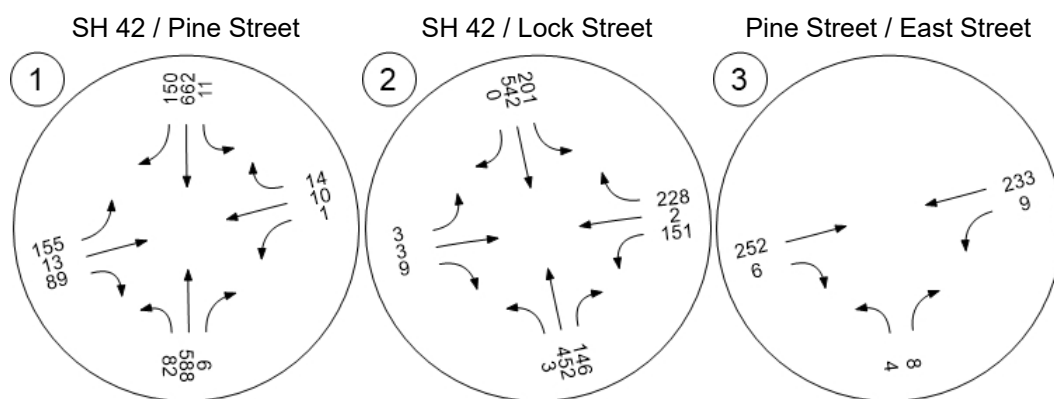
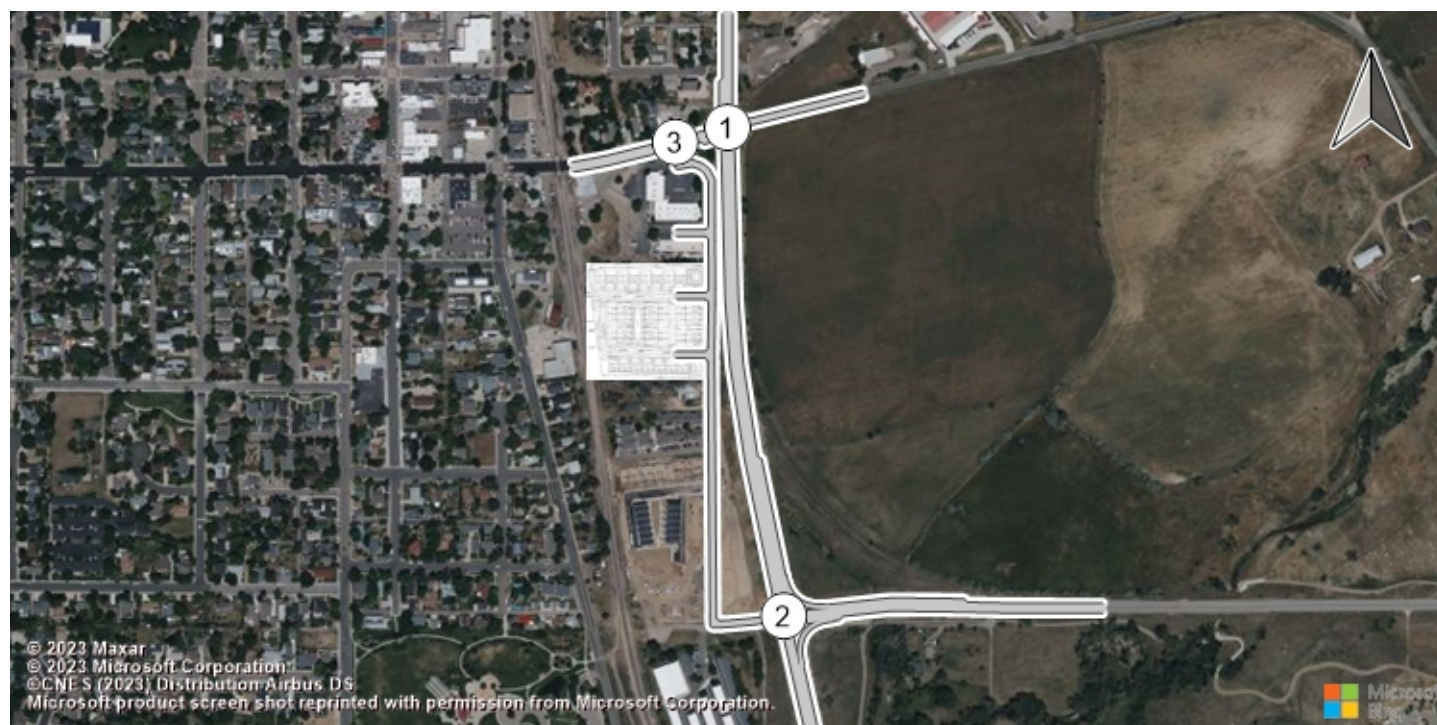
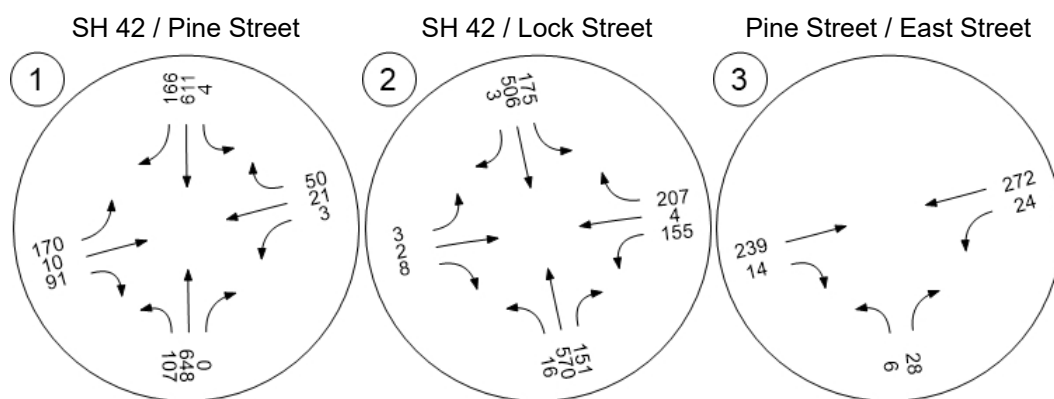
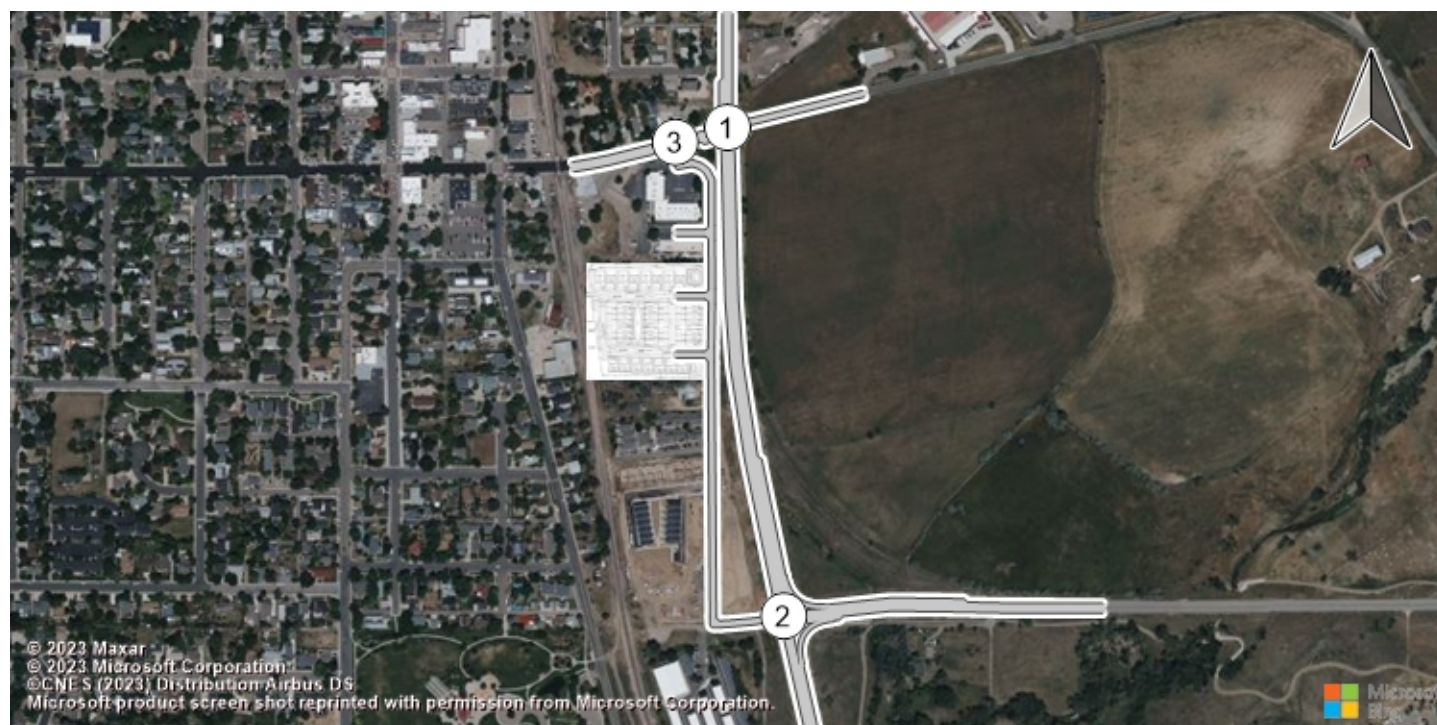
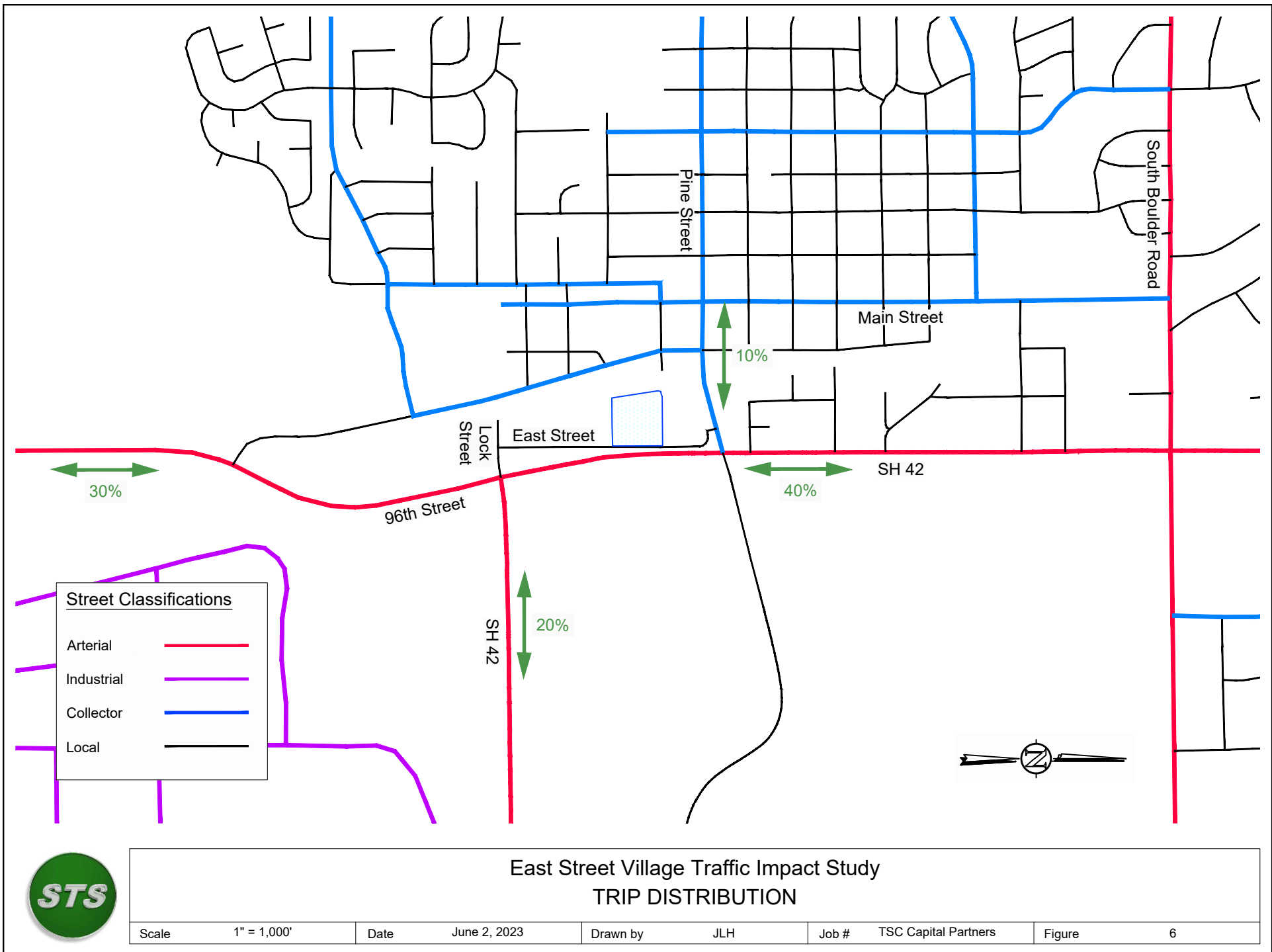


Figure 5 – Year 2023 Traffic Volumes – Evening Peak Hour





East Street Village Traffic Impact Study TRIP DISTRIBUTION

Scale	1" = 1,000'	Date	June 2, 2023	Drawn by	JLH	Job #	TSC Capital Partners	Figure	6
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Figure 7 – Scenario 1 Residential Trip Assignment – Morning Peak Hour



Figure 8 – Scenario 1 Residential Trip Assignment – Evening Peak Hour



Figure 9 – Scenario 2 Residential Trip Assignment – Morning Peak Hour



Figure 10 – Scenario 2 Residential Trip Assignment – Evening Peak Hour



Figure 11 – Fast Casual Restaurant Trip Assignment – Morning Peak Hour



Figure 12 – Fast Casual Restaurant Trip Assignment – Evening Peak Hour

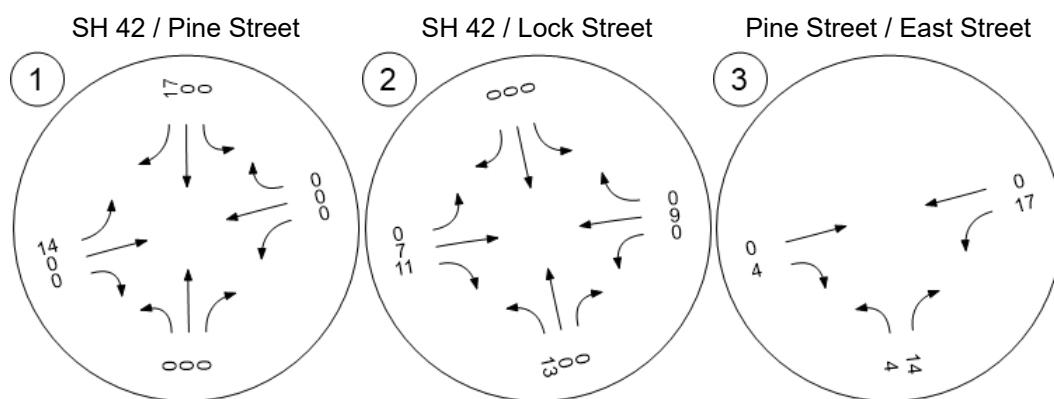
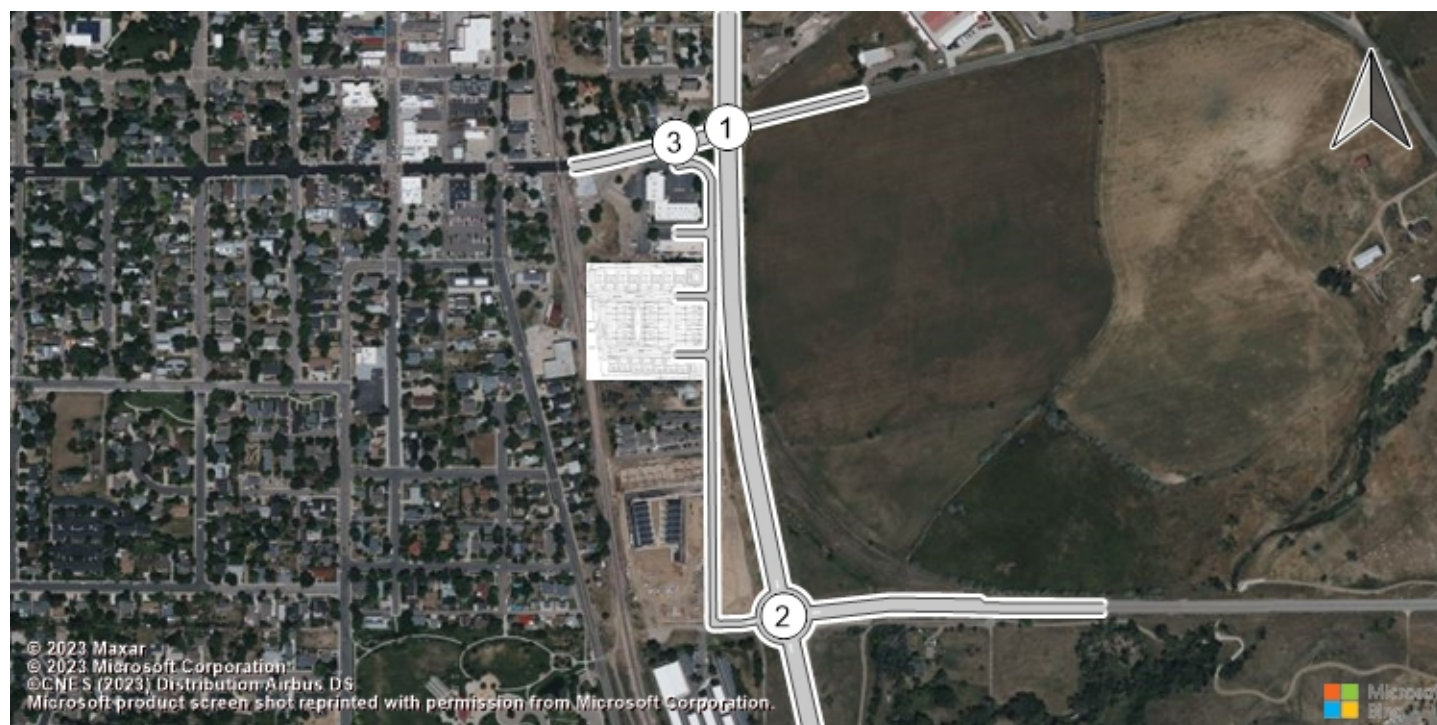


Figure 13 – Year 2025 Background Traffic Volumes – Morning Peak Hour

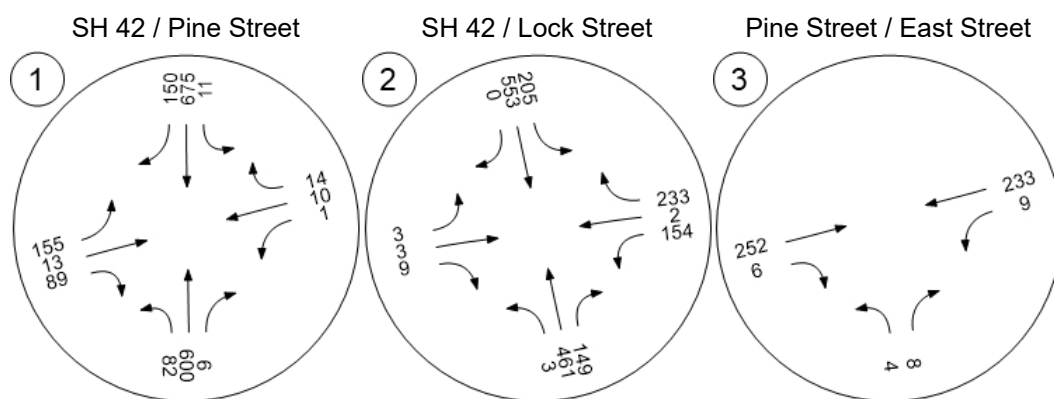


Figure 14 – Year 2025 Background Traffic Volumes – Evening Peak Hour

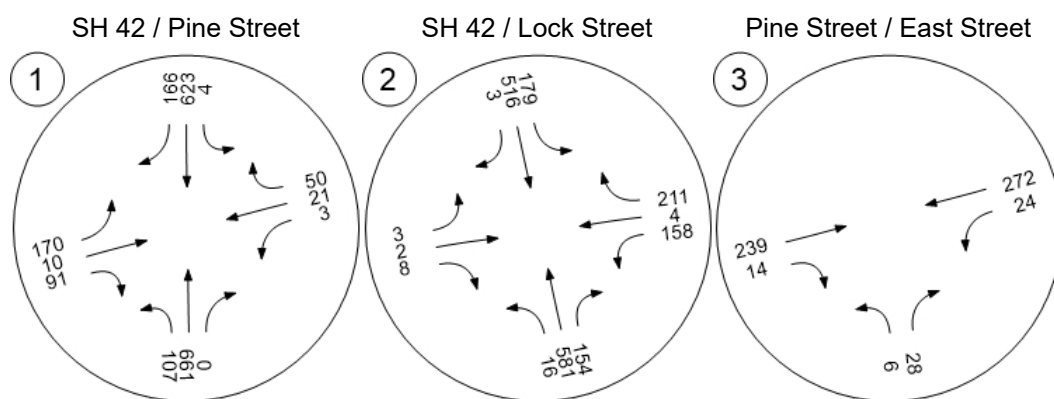


Figure 15 – Year 2025 Total Traffic Volumes Scenario 1 Residential – Morning Peak Hour



Figure 16 – Year 2025 Total Traffic Volumes Scenario 1 Residential – Evening Peak Hour



Figure 17 – Year 2025 Total Traffic Volumes Scenario 2 Residential – Morning Peak Hour



Figure 18 – Year 2025 Total Traffic Volumes Scenario 2 Residential – Evening Peak Hour



Figure 19 – Laneage and Traffic Control – Year 2025

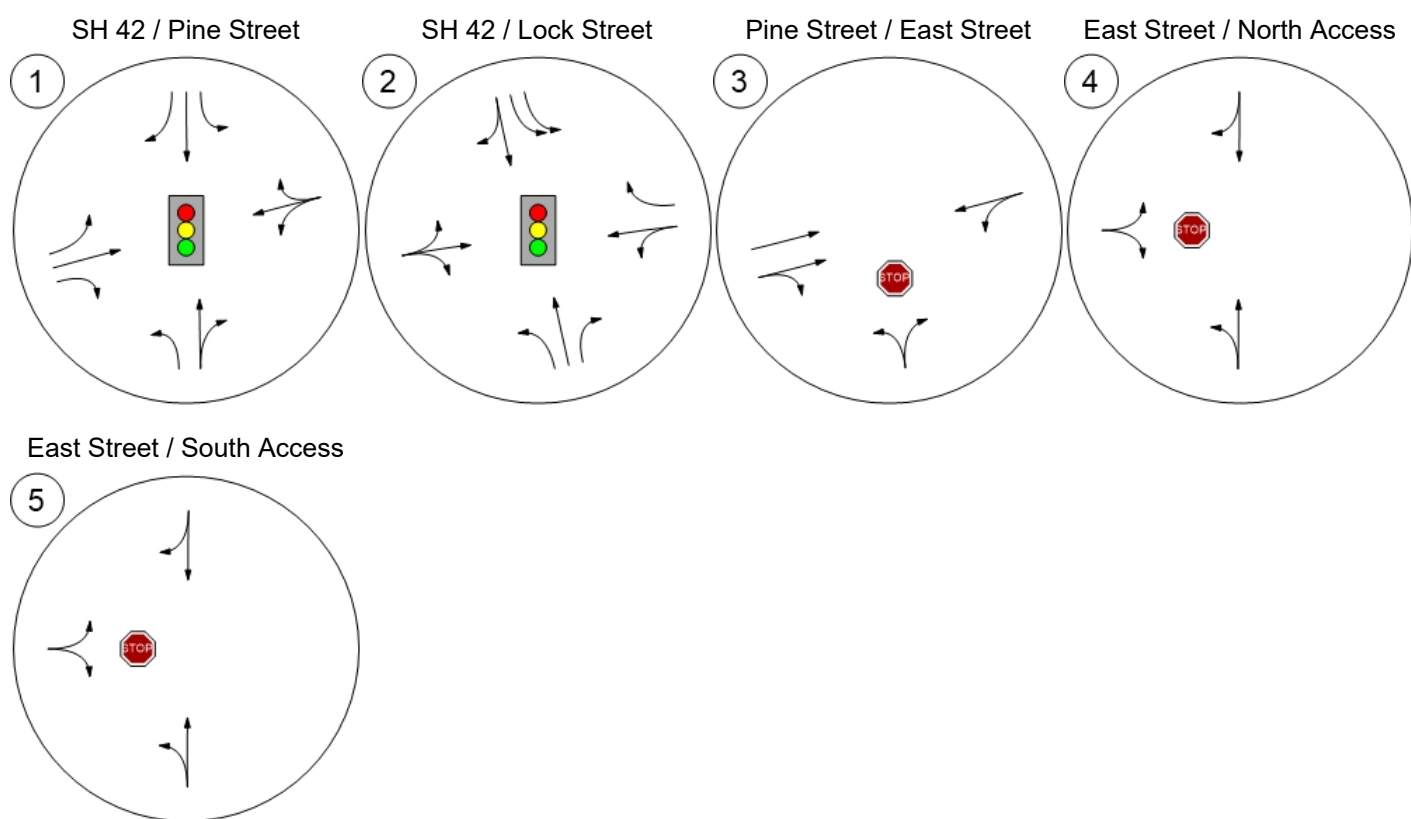


Figure 20 – Year 2045 Background Traffic Volumes – Morning Peak Hour



Figure 21 – Year 2045 Background Traffic Volumes – Evening Peak Hour

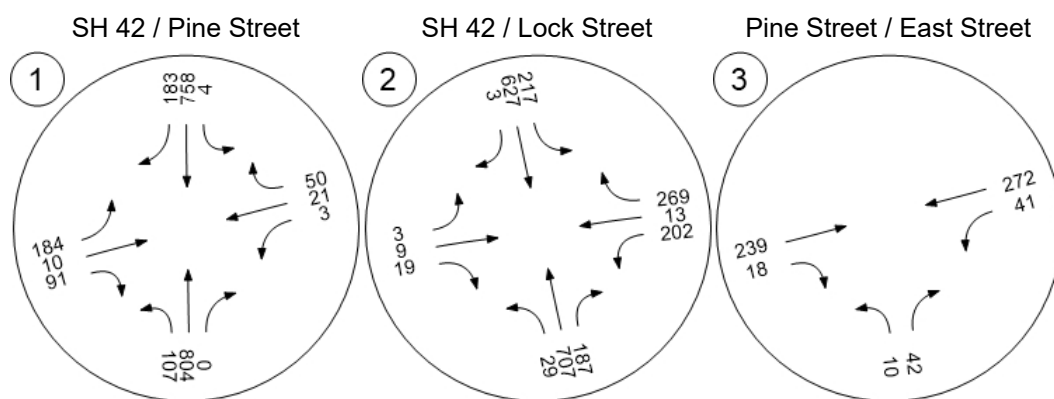
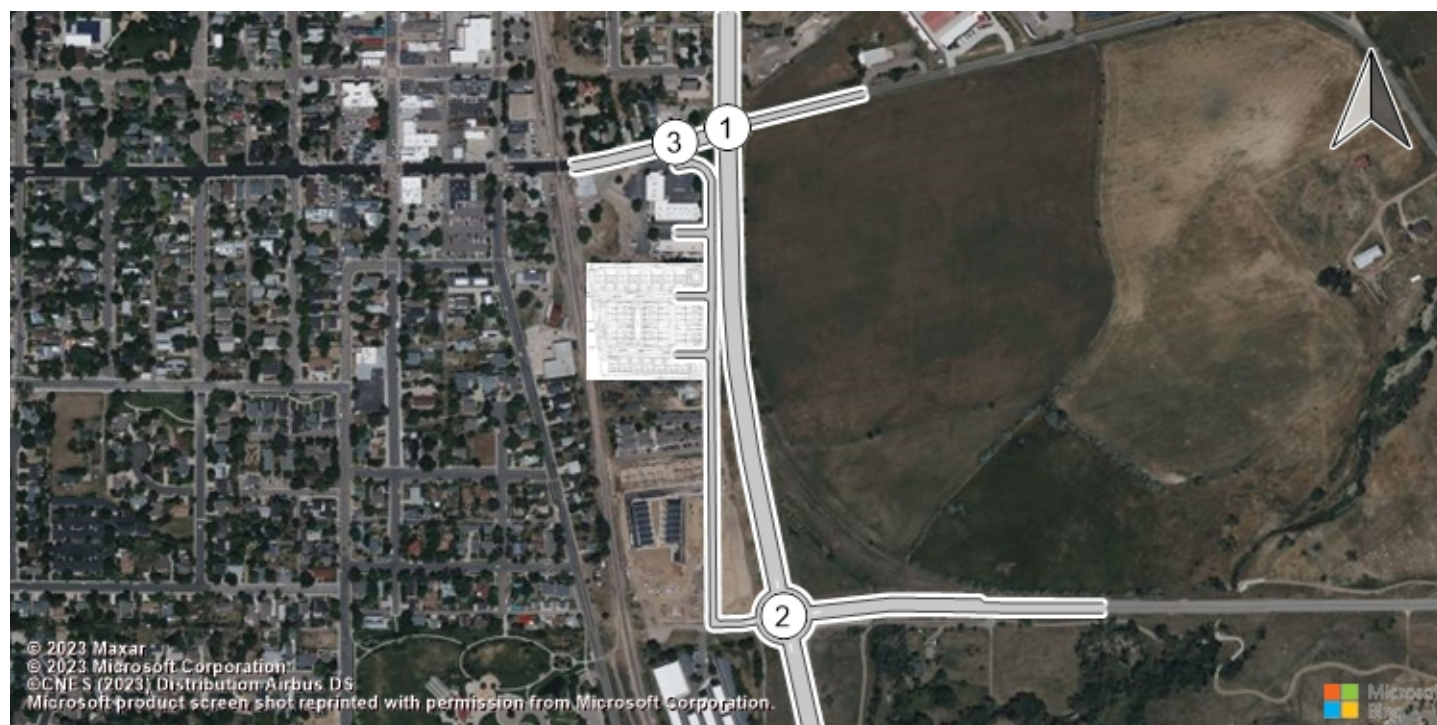


Figure 22 – Year 2045 Total Traffic Volumes Scenario 1 Residential – Morning Peak Hour



Figure 23 – Year 2045 Total Traffic Volumes Scenario 1 Residential – Evening Peak Hour



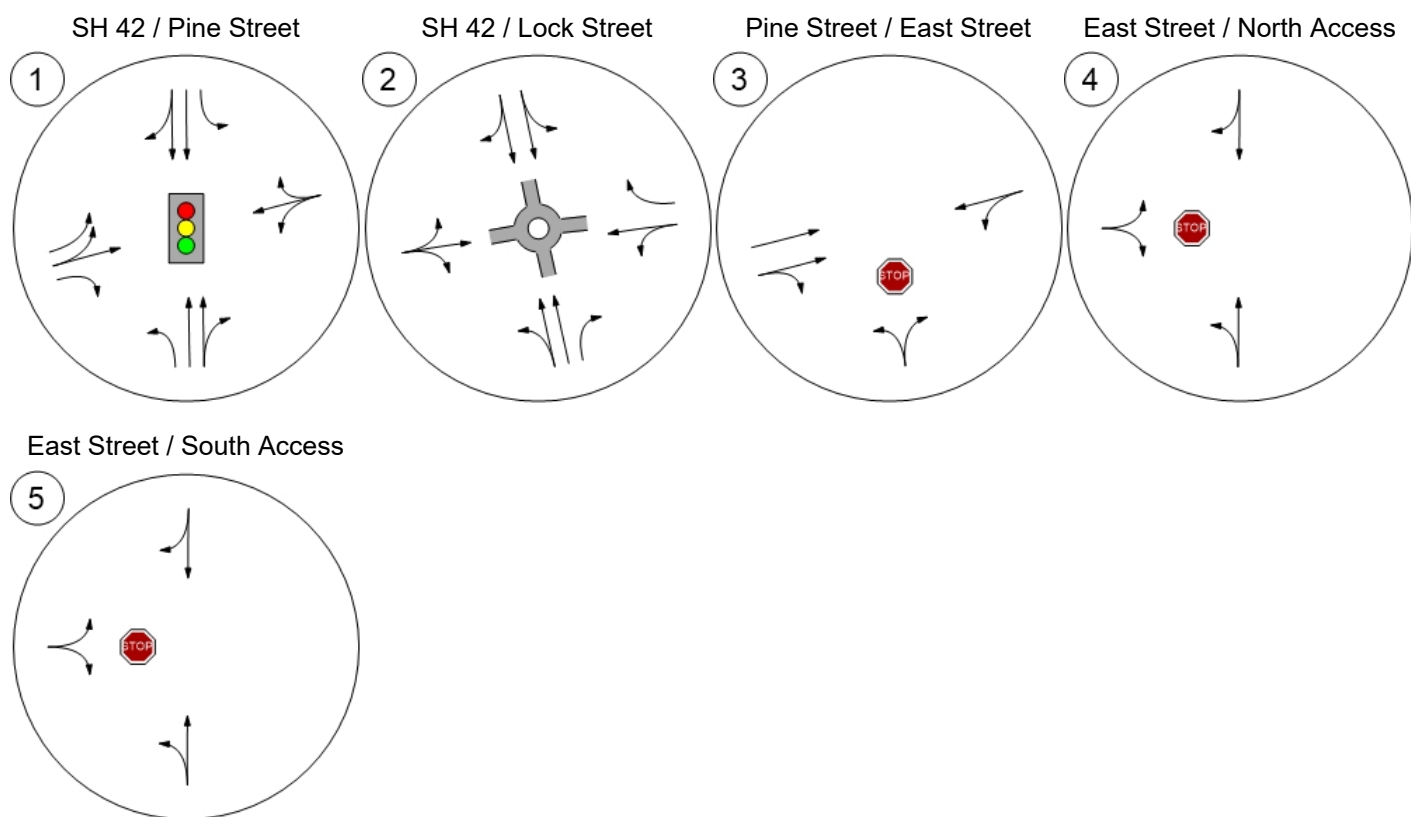
Figure 24 – Year 2045 Total Traffic Volumes Scenario 2 Residential – Morning Peak Hour



Figure 25 – Year 2045 Total Traffic Volumes Scenario 2 Residential – Evening Peak Hour



Figure 26 – Laneage and Traffic Control – Year 2045



Appendix A

Project Correspondence



Joe Henderson <thetrafficczar@gmail.com>

Meeting Notes - East Street Village Traffic Impact Study

6 messages

Joe Henderson <joe@sustainabletrafficsolutions.com>

Tue, Feb 7, 2023 at 6:17 AM

To: Cameron Fowlkes <CameronF@louisvilleco.gov>, Craig Duffin <CraigD@louisvilleco.gov>, elizabethm@louisvilleco.gov

Cc: Andy Johnson <andy@dajdesign.com>

Friends,

These are my notes from our meeting last Friday. Please let me know if you have any changes or additions.

Intersections Included in the Study Area

- SH 42 / Pine Street
- Pine Street / East Street
- SH 42 / Lock Street
- Lock Street / East Street

Land Use Scenarios

- 15 single family dwelling units (SFDU trip generation)
- 21 townhomes
- Separate apartment in 12 of the townhomes (patio home trip generation rate for one bedroom apartments)
- The second scenario will be without the apartments

Future Development

- Assume 7,000 square feet future development behind the strip mall
- Land use will be retail or food service (choose the most restrictive)

Alternate Modes

- Assume none

--

Joseph L. Henderson, PE, PTOE

Principal

Sustainable Traffic Solutions, Inc.

823 West 124th Drive

Westminster, CO 80234

303.589.6875

joe@sustainabletrafficsolutions.com

sustainabletrafficsolutions.com

Licensed in CO, WY, and IA



Andy Johnson <andy@dajdesign.com>

Tue, Feb 7, 2023 at 7:03 AM

To: Sustainable Traffic Solutions <joe@sustainabletrafficsolutions.com>

Cc: Cameron Fowlkes <CameronF@louisvilleco.gov>, Craig Duffin <CraigD@louisvilleco.gov>, elizabethm@louisvilleco.gov

Hi Joe,

I believe that covers everything we discussed. Would alternate modes include pedestrian, cycling, and mass transit, or does it include other modes?

Thanks.

Andy Johnson, AIA

DAJDESIGN

w. 303.527.1100

m. 303.249.1624

[Quoted text hidden]

Joe Henderson <joe@sustainabletrafficsolutions.com>

Tue, Feb 7, 2023 at 9:44 AM

To: Andy Johnson <andy@dajdesign.com>

Cc: Cameron Fowlkes <CameronF@louisvilleco.gov>, Craig Duffin <CraigD@louisvilleco.gov>, elizabethm@louisvilleco.gov

Andy,

That's a great question. The response that I received about the path going by the development lead me to believe that there wouldn't be a significant number of people using the path to commute to downtown. However, the site is about a 10 minute bike ride to the RTD station at US 36 / McCaslin so there is potential that people could cycle to that station and get on a regional bus. Also, I think that working from home could be considered an alternate mode of transportation. While people aren't actually traveling, they are not commuting to work. Since the pandemic, I have a significant number of neighbors and friends who haven't gone back to the office or are only there part time. I would propose a 10% mode split for the traffic study. I actually think that this is a conservative number.

Joe

[Quoted text hidden]

Andy Johnson <andy@dajdesign.com>

Tue, Feb 7, 2023 at 12:49 PM

To: Joe Henderson <joe@sustainabletrafficsolutions.com>

Cc: Cameron Fowlkes <CameronF@louisvilleco.gov>, Craig Duffin <CraigD@louisvilleco.gov>, "elizabethm@louisvilleco.gov" <elizabethm@louisvilleco.gov>

Joe,

I think the work from home component is significant and more than 10% (more like 25-40%), but let's stay with the notion of being conservative and go with 10%. I do not believe folks will be driving from this development to downtown or up to DELO, but I do think that despite the relatively proximity they will be driving to King Soopers for groceries. When the multi-purpose path goes in it will likely encourage alternate modes of transportation, but sadly the reality is that it will still be somewhat low. I think the multi-purpose path will encourage recreation more than commuting, which is great but it probably won't influence the traffic study enough to matter. Just my two cents.

Craig, Cameron, Elizabeth, does staff want to weigh in on what you would like to see from the report around the topics being discussed? Also, can you please review Joe's scope of work outline and make sure it meets the needs of staff's request for the traffic study?

Thanks!

Andy

--

Andy Johnson, AIA

DAJDESIGN

w. 303.527.1100

m. 303.249.1624

[Quoted text hidden]

Craig Duffin <craigd@louisvilleco.gov>

Tue, Feb 7, 2023 at 5:39 PM

To: Andy Johnson <andy@dajdesign.com>, Joe Henderson <joe@sustainabletrafficsolutions.com>

Cc: Cameron Fowlkes <cfowlkes@louisvilleco.gov>, "elizabethm@louisvilleco.gov" <elizabethm@louisvilleco.gov>

Comments below in red.

From: Andy Johnson <andy@dajdesign.com>

Sent: Tuesday, February 7, 2023 12:50 PM

To: Joe Henderson <joe@sustainabletrafficsolutions.com>

Cc: Cameron Fowlkes <cfowlkes@louisvilleco.gov>; Craig Duffin <craigd@louisvilleco.gov>; elizabethm@louisvilleco.gov

Subject: RE: Meeting Notes - East Street Village Traffic Impact Study

Joe,

I think the work from home component is significant and more than 10% (more like 25-40%), but let's stay with the notion of being conservative and go with 10%. I do not believe folks will be driving from this development to downtown or up to DELO, but I do think that despite the relatively proximity they will be driving to King Soopers for groceries. When the multi-purpose path goes in it will likely encourage alternate modes of transportation, but sadly the reality is that it will still be somewhat low. I think the multi-purpose path will encourage recreation more than commuting, which is great but it probably won't influence the traffic study enough to matter. Just my two cents. **Andy, have no feel for the work from home component or other alternate modes, just be conservative. Joe, RTD bus route passes by Main at Pine. CD.**

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

- Lock Street / East Street. **Joe, not concerned with this intersection. CD.**

Land Use Scenarios

- 15 single family dwelling units (SFDU trip generation)
- 21 townhomes
- Separate apartment in 12 of the townhomes (patio home trip generation rate for one bedroom apartments)
- The second scenario will be without the apartments

Future Development

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- Land use will be retail or food service (choose the most restrictive)

Alternate Modes

- Assume none

--

Joseph L. Henderson, PE, PTOE

Principal

Sustainable Traffic Solutions, Inc.

823 West 124th Drive

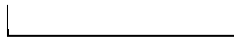
Westminster, CO 80234

303.589.6875

joe@sustainabletrafficsolutions.com

sustainabletrafficsolutions.com

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--

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Andy Johnson <andy@dajdesign.com>

Tue, Feb 7, 2023 at 8:37 PM

To: Craig Duffin <craigd@louisvilleco.gov>

Cc: Joe Henderson <joe@sustainabletrafficsolutions.com>, Cameron Fowlkes <cfowlkes@louisvilleco.gov>, elizabethm@louisvilleco.gov

Craig, thanks.

Joe, looks like we can remove the intersection of Lock and East St based on Craigs comments. Thanks!

Andy

Andy Johnson
DAJDESIGN
m. 303.249.1624
w. 303.527.1100

On Feb 7, 2023, at 5:39 PM, Craig Duffin <craigd@louisvilleco.gov> wrote:

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

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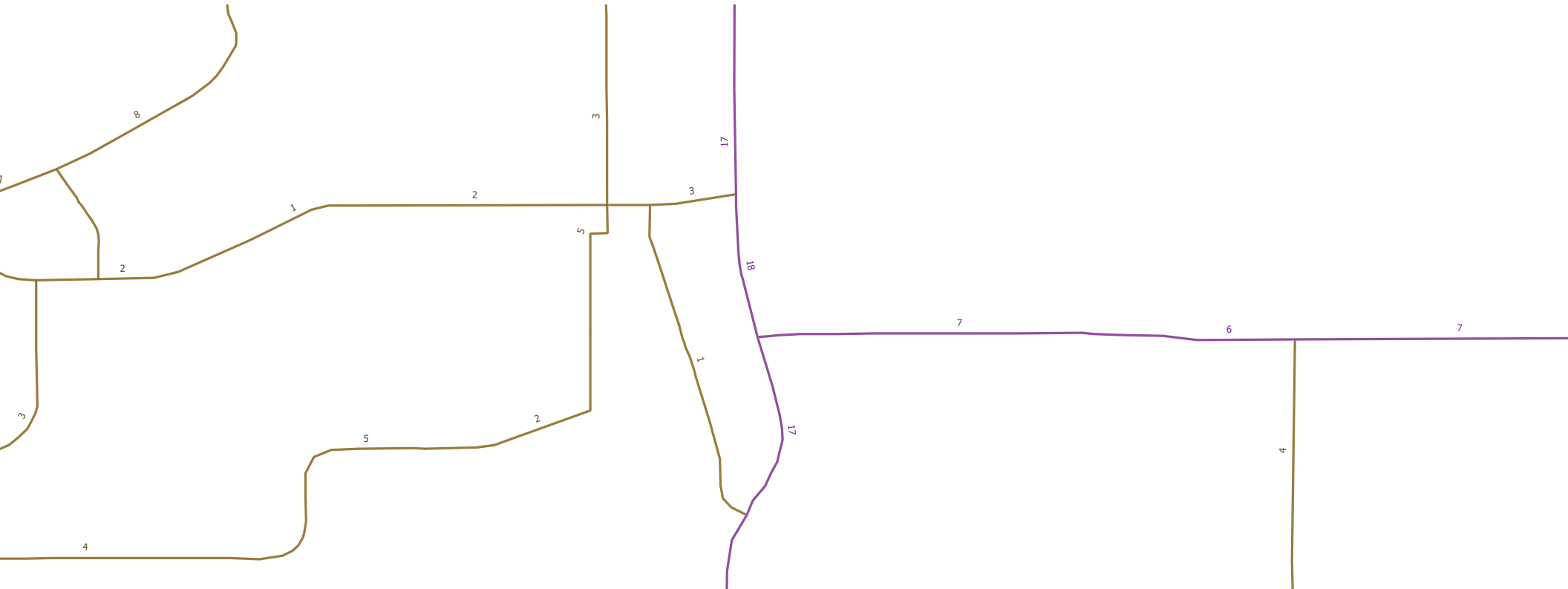
|

<image002.jpg>

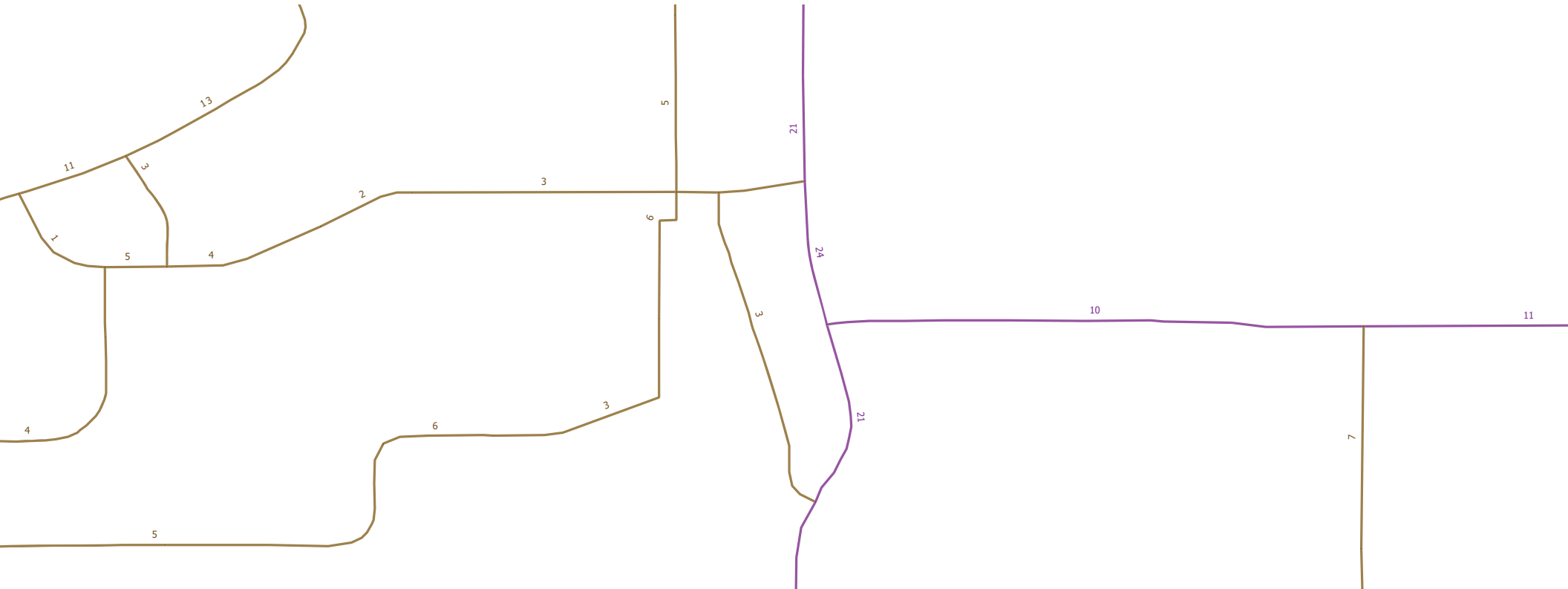
Appendix B

DRCOG Traffic Projections

Year 2020 Traffic Volumes



Year 2050 Traffic Volume Projections



Appendix C

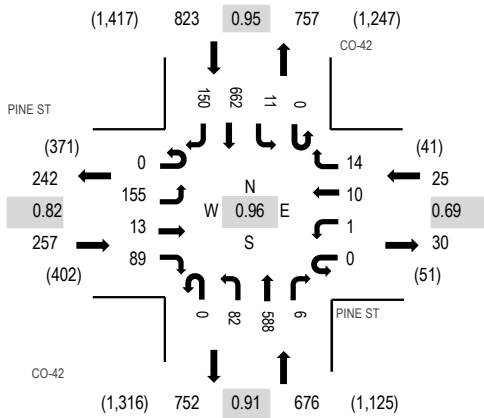
Traffic Count Data



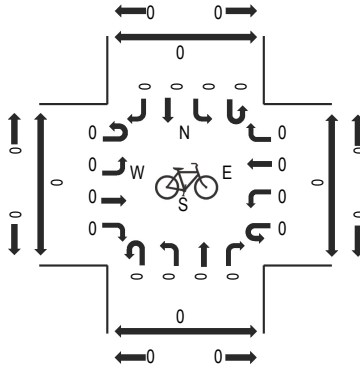
(303) 216-2439
www.alltrafficdata.net

Location: 1 CO-42 & PINE ST AM
Date: Thursday, February 23, 2023
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

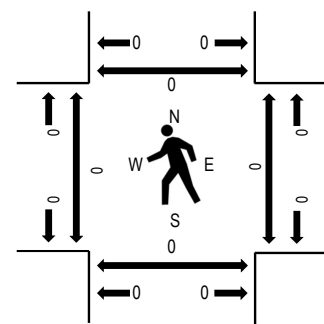
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

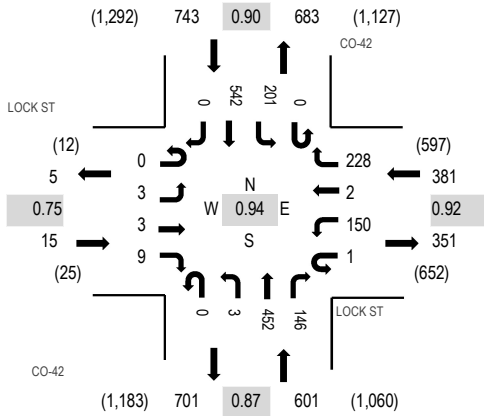
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	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	9	0	7	0	0	1	0	0	8	64	3	0	0	96	9	197	1,268	0	0	0	0
7:15 AM	0	22	4	16	0	0	2	1	0	10	79	0	0	2	105	14	255	1,533	0	0	0	0
7:30 AM	0	24	1	8	0	0	3	2	0	6	122	0	0	2	164	31	363	1,723	0	0	0	0
7:45 AM	0	42	3	33	0	0	3	6	0	30	120	0	0	3	170	43	453	1,781	0	0	0	0
8:00 AM	0	50	2	19	0	0	2	2	0	18	163	3	0	4	164	35	462	1,717	0	0	0	0
8:15 AM	0	38	4	17	0	0	1	2	0	17	169	1	0	2	156	38	445		0	0	0	0
8:30 AM	0	25	4	20	0	1	4	4	0	17	136	2	0	2	172	34	421		0	0	0	0
8:45 AM	0	28	4	22	0	2	3	2	0	19	137	1	0	4	144	23	389		0	0	0	0
Count Total	0	238	22	142	0	3	19	19	0	125	990	10	0	19	1,171	227	2,985		0	0	0	0
Peak Hour	0	155	13	89	0	1	10	14	0	82	588	6	0	11	662	150	1,781		0	0	0	0



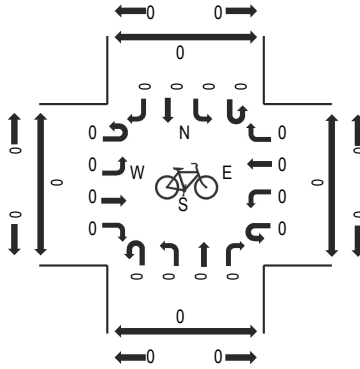
(303) 216-2439
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Location: 2 CO-42 & LOCK ST AM
Date: Thursday, February 23, 2023
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

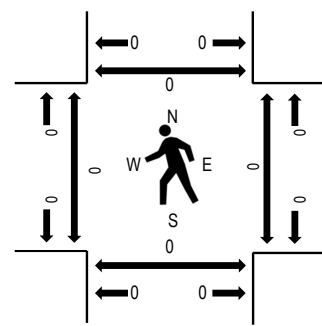
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	LOCK ST Eastbound				LOCK ST Westbound				CO-42 Northbound				CO-42 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	1	1	1	0	14	1	16	0	1	57	25	0	27	69	1	214	1,290	0	0	0	0
7:15 AM	0	0	0	2	0	20	1	33	0	1	56	48	0	40	85	0	286	1,539	0	0	0	0
7:30 AM	0	0	0	4	0	23	0	37	0	1	95	37	0	34	123	0	354	1,686	0	0	0	0
7:45 AM	0	1	2	2	0	39	0	64	0	2	83	37	0	54	152	0	436	1,740	0	0	0	0
8:00 AM	0	1	0	5	0	42	0	58	0	0	128	50	0	49	130	0	463	1,684	0	0	0	0
8:15 AM	0	1	1	1	0	45	1	58	0	0	123	24	0	45	134	0	433		0	0	0	0
8:30 AM	0	0	0	1	1	24	1	48	0	1	118	35	0	53	126	0	408		0	0	0	0
8:45 AM	0	0	0	1	0	23	0	48	0	1	101	36	0	53	117	0	380		0	0	0	0
Count Total	0	4	4	17	1	230	4	362	0	7	761	292	0	355	936	1	2,974		0	0	0	0
Peak Hour	0	3	3	9	1	150	2	228	0	3	452	146	0	201	542	0	1,740		0	0	0	0



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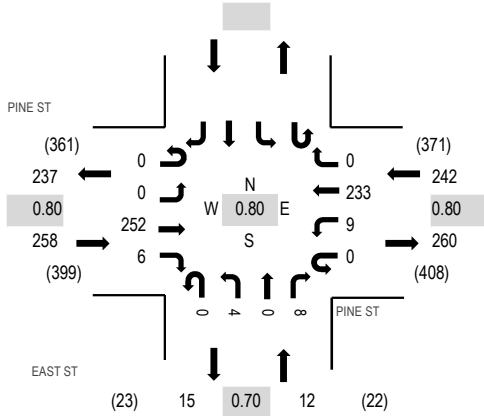
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Date: Thursday, February 23, 2023

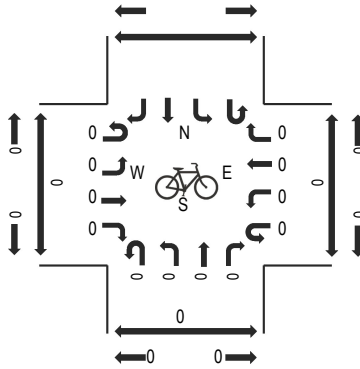
Peak Hour: 07:45 AM - 08:45 AM

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

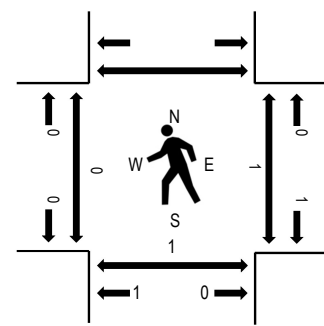
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	PINE ST Eastbound				PINE ST Westbound				EAST ST Northbound				Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	20	0	0	1	17	0	0	2	0	1					41	344	0	0	0	
7:15 AM	0	0	41	0	0	0	26	0	0	0	0	1					68	435	0	0	0	
7:30 AM	0	0	33	0	0	3	38	0	0	0	0	1					75	477	0	0	0	
7:45 AM	0	0	80	1	0	0	76	0	0	2	0	1					160	512	0	0	0	
8:00 AM	0	0	71	3	0	3	52	0	0	0	0	3					132	448	0	0	0	
8:15 AM	0	0	49	1	0	3	54	0	0	1	0	2					110		0	0	0	
8:30 AM	0	0	52	1	0	3	51	0	0	1	0	2					110		0	1	1	
8:45 AM	0	0	46	1	0	3	41	0	0	0	0	5					96		0	0	0	
Count Total	0	0	392	7	0	16	355	0	0	6	0	16					792		0	1	1	
Peak Hour	0	0	252	6	0	9	233	0	0	4	0	8					512		0	1	1	



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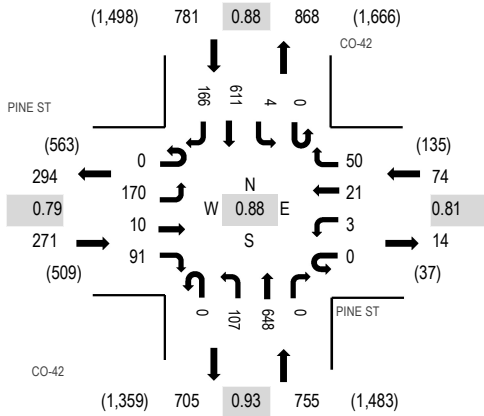
Location: 1 CO-42 & PINE ST PM

Date: Thursday, February 23, 2023

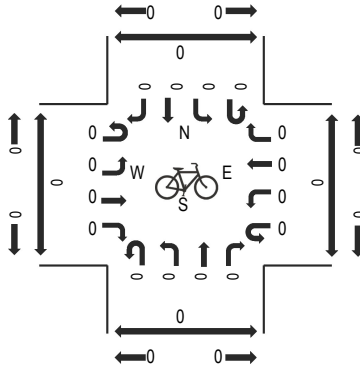
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

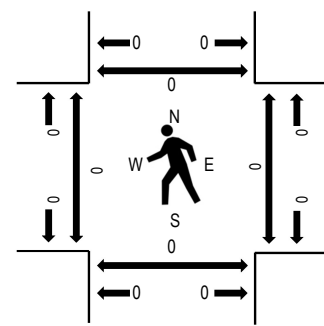
Peak Hour - Motorized Vehicles



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Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	PINE ST Eastbound				PINE ST Westbound				CO-42 Northbound				CO-42 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	43	2	29	0	1	4	13	0	23	173	2	0	1	154	52	497	1,816	0	0	0	0
4:15 PM	0	46	5	19	0	1	5	8	0	21	185	0	0	3	121	36	450	1,853	0	0	0	0
4:30 PM	0	20	2	27	0	1	5	14	0	28	134	2	0	2	154	30	419	1,848	0	0	0	0
4:45 PM	0	35	2	23	0	2	2	7	0	21	174	0	0	0	143	41	450	1,881	0	0	0	0
5:00 PM	0	56	4	26	0	1	5	17	0	36	167	0	0	2	178	42	534	1,809	0	0	0	0
5:15 PM	0	31	2	21	0	0	8	16	0	26	158	0	0	2	143	38	445		0	0	0	0
5:30 PM	0	48	2	21	0	0	6	10	0	24	149	0	0	0	147	45	452		0	0	0	0
5:45 PM	0	26	1	18	0	0	3	6	0	30	130	0	0	3	129	32	378		0	0	0	0
Count Total	0	305	20	184	0	6	38	91	0	209	1,270	4	0	13	1,169	316	3,625		0	0	0	0
Peak Hour	0	170	10	91	0	3	21	50	0	107	648	0	0	4	611	166	1,881		0	0	0	0



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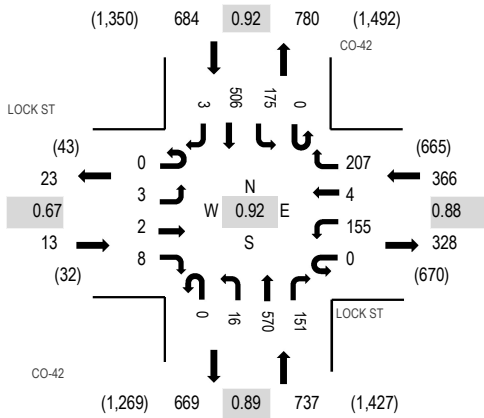
Location: 2 CO-42 & LOCK ST PM

Date: Thursday, February 23, 2023

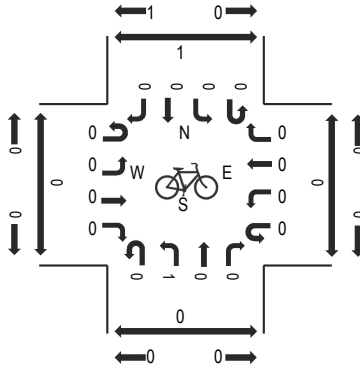
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Peak 15-Minutes: 05:00 PM - 05:15 PM

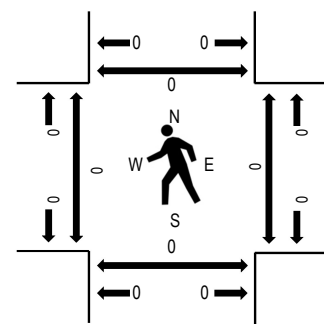
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	LOCK ST Eastbound				LOCK ST Westbound				CO-42 Northbound				CO-42 Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	2	4	0	32	3	53	0	2	143	38	0	54	129	3	463	1,774	0	1	0	1
4:15 PM	0	2	1	2	0	40	1	47	0	4	163	39	0	42	100	1	442	1,800	0	0	0	0
4:30 PM	0	0	0	2	0	48	1	44	0	4	118	39	0	41	127	0	424	1,784	0	0	0	0
4:45 PM	0	1	1	1	0	31	0	50	0	3	149	30	0	49	130	0	445	1,765	0	0	0	0
5:00 PM	0	0	0	3	0	36	2	66	0	5	140	43	0	43	149	2	489	1,700	0	0	0	0
5:15 PM	0	0	1	3	0	26	0	55	0	1	127	38	0	52	122	1	426		0	0	0	0
5:30 PM	0	0	0	5	0	34	3	36	0	1	136	41	0	28	120	1	405		0	0	0	0
5:45 PM	0	0	1	3	0	13	0	44	0	5	118	40	0	47	109	0	380		0	0	0	0
Count Total	0	3	6	23	0	260	10	395	0	25	1,094	308	0	356	986	8	3,474		0	1	0	1
Peak Hour	0	3	2	8	0	155	4	207	0	16	570	151	0	175	506	3	1,800		0	0	0	0



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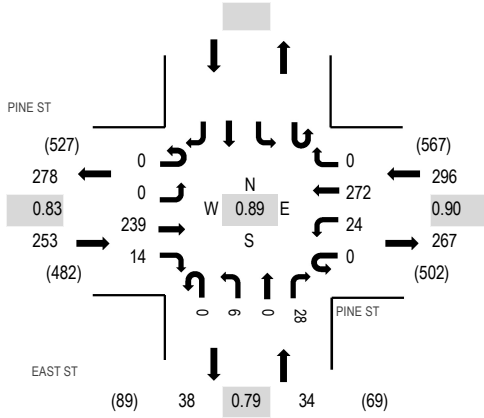
Location: 3 EAST ST & PINE ST PM

Date: Thursday, February 23, 2023

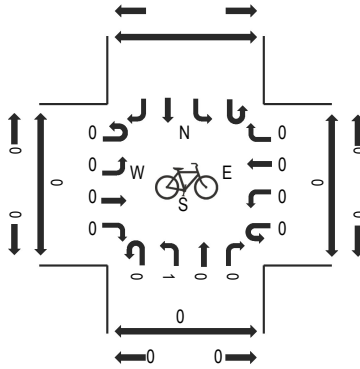
Peak Hour: 04:45 PM - 05:45 PM

Peak 15-Minutes: 05:00 PM - 05:15 PM

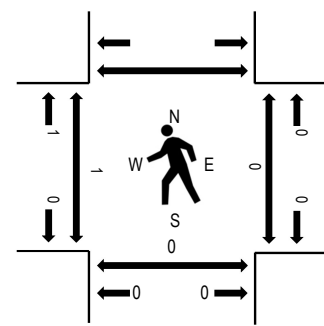
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	PINE ST Eastbound				PINE ST Westbound				EAST ST Northbound				Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	0	60	6	0	14	66	0	0	3	0	10					159	552	0	0	0	0
4:15 PM	0	0	69	4	0	3	59	0	0	1	0	4					140	557	0	0	0	0
4:30 PM	0	0	42	3	0	11	53	0	0	1	0	4					114	548	0	0	0	0
4:45 PM	0	0	58	4	0	11	58	0	0	2	0	6					139	583	0	0	0	0
5:00 PM	0	0	71	6	0	4	78	0	0	1	0	4					164	566	0	0	0	0
5:15 PM	0	0	49	1	0	5	66	0	0	1	0	9					131		1	0	0	0
5:30 PM	0	0	61	3	0	4	70	0	0	2	0	9					149		0	0	0	0
5:45 PM	0	0	40	5	0	5	60	0	0	6	0	6					122		0	1	0	0
Count Total	0	0	450	32	0	57	510	0	0	17	0	52					1,118		1	1	0	0
Peak Hour	0	0	239	14	0	24	272	0	0	6	0	28					583		1	0	0	0

All Traffic Data Services

9660 W 44th Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

Page 1

Site Code: 1
Station ID: 1
CO-42 S.O. Pine St

Start Time	23-Feb-23 Thu	NB	SB	Total
12:00 AM		13	15	28
01:00		16	15	31
02:00		17	17	34
03:00		17	19	36
04:00		29	35	64
05:00		48	121	169
06:00		143	253	396
07:00		441	599	1040
08:00		683	717	1400
09:00		459	474	933
10:00		391	452	843
11:00		464	465	929
12:00 PM		484	518	1002
01:00		463	505	968
02:00		542	509	1051
03:00		643	634	1277
04:00		763	675	1438
05:00		720	684	1404
06:00		439	455	894
07:00		304	294	598
08:00		240	246	486
09:00		164	138	302
10:00		100	76	176
11:00		39	39	78
Total		7622	7955	15577
Percent		48.9%	51.1%	
AM Peak	-	08:00	08:00	-
Vol.	-	683	717	-
PM Peak	-	16:00	17:00	-
Vol.	-	763	684	-
Grand Total		7622	7955	15577
Percent		48.9%	51.1%	
ADT		ADT 15,577	AADT 15,577	

Appendix D

VISTRO Analysis Results

Year 2023 Traffic Volume Scenarios

East Street Village TIS

Vistro File: C:\...\AM.vistro
Report File: C:\...\2023 AM.pdf

Scenario 1 2023 AM
6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.512	19.6	B
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.577	30.5	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.012	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: SH 42 / Pine Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 19.6
 Level Of Service: B
 Volume to Capacity (v/c): 0.512

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	82	588	6	11	662	150	155	13	89	1	10	14
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	3	0	0	75	0	0	45	0	0	7
Total Hourly Volume [veh/h]	82	588	3	11	662	75	155	13	44	1	10	7
Peak Hour Factor	0.9100	0.9100	0.9100	0.9500	0.9500	0.9500	0.8200	0.8200	0.8200	0.6900	0.6900	0.6900
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]	23	162	1	3	174	20	47	4	13	0	4	3
Total Analysis Volume [veh/h]	90	646	3	12	697	79	189	16	54	1	14	10
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	15	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	85	0	0	68	0	0	20	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83	74	74	74	15	15	15	9
g / C, Green / Cycle	0.69	0.69	0.62	0.62	0.62	0.13	0.13	0.13	0.07
(v / s)_i Volume / Saturation Flow Rate	0.11	0.35	0.02	0.37	0.05	0.11	0.01	0.03	0.01
s, saturation flow rate [veh/h]	784	1868	782	1870	1589	1781	1870	1589	1743
c, Capacity [veh/h]	468	1294	397	1158	984	228	239	203	125
d1, Uniform Delay [s]	9.81	8.70	19.73	13.87	9.15	51.07	46.04	47.25	52.50
k, delay calibration	0.44	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.80	1.39	0.14	2.32	0.16	7.60	0.12	0.69	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.50	0.03	0.60	0.08	0.83	0.07	0.27	0.20
d, Delay for Lane Group [s/veh]	10.61	10.09	19.87	16.19	9.31	58.67	46.16	47.95	53.28
Lane Group LOS	B	B	B	B	A	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.80	7.81	0.21	11.62	0.86	6.02	0.43	1.50	0.74
50th-Percentile Queue Length [ft/ln]	20.01	195.26	5.28	290.51	21.43	150.48	10.76	37.58	18.48
95th-Percentile Queue Length [veh/ln]	1.44	12.39	0.38	17.21	1.54	10.04	0.77	2.71	1.33
95th-Percentile Queue Length [ft/ln]	36.02	309.84	9.51	430.28	38.57	251.08	19.37	67.65	33.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.61	10.09	10.09	19.87	16.19	9.31	58.67	46.16	47.95	53.28	53.28	53.28
Movement LOS	B	B	B	B	B	A	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.15			15.55			55.66			53.28		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	19.61											
Intersection LOS	B											
Intersection V/C	0.512											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1333			1050			267			250		
d_b, Bicycle Delay [s]	6.67			13.54			45.07			45.94		
I_b,int, Bicycle LOS Score for Intersection	2.784			2.984			2.061			1.612		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 30.5
Level Of Service: C
Volume to Capacity (v/c): 0.577

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	3	452	146	201	542	0	3	3	9	151	2	228
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	73	0	0	0	0	0	5	0	0	114
Total Hourly Volume [veh/h]	3	452	73	201	542	0	3	3	4	151	2	114
Peak Hour Factor	0.8700	0.8700	0.8700	0.9000	0.9000	0.9000	0.7500	0.7500	0.7500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	130	21	56	151	0	1	1	1	41	1	31
Total Analysis Volume [veh/h]	3	520	84	223	602	0	4	4	5	164	2	124
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	24	97	0	0	23	0	0	23	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	77	77	77	10	91	17	17	17
g / C, Green / Cycle	0.64	0.64	0.64	0.08	0.76	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.28	0.05	0.06	0.32	0.03	0.23	0.08
s, saturation flow rate [veh/h]	817	1870	1589	3459	1870	445	707	1589
c, Capacity [veh/h]	473	1196	1017	294	1418	102	160	225
d1, Uniform Delay [s]	14.75	10.78	8.22	53.66	5.17	45.18	54.66	47.91
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.02	1.15	0.16	3.98	0.93	0.55	81.53	2.09
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.43	0.08	0.76	0.42	0.13	1.04	0.55
d, Delay for Lane Group [s/veh]	14.78	11.93	8.38	57.64	6.11	45.73	136.20	50.00
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.04	6.95	0.85	3.45	4.96	0.35	8.49	3.59
50th-Percentile Queue Length [ft/ln]	1.10	173.70	21.33	86.34	123.99	8.81	212.27	89.74
95th-Percentile Queue Length [veh/ln]	0.08	11.27	1.54	6.22	8.61	0.63	13.49	6.46
95th-Percentile Queue Length [ft/ln]	1.99	281.78	38.40	155.41	215.29	15.86	337.24	161.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.78	11.93	8.38	57.64	6.11	6.11	45.73	45.73	45.73	136.20	136.20	50.00
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	11.46			20.04			45.73			99.34		
Approach LOS	B			C			D			F		
d_I, Intersection Delay [s/veh]	30.48											
Intersection LOS	C											
Intersection V/C	0.577											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1517			283			283		
d_b, Bicycle Delay [s]	11.69			3.50			44.19			44.19		
I_b,int, Bicycle LOS Score for Intersection	2.682			2.921			1.589			2.226		
Bicycle LOS	B			C			A			B		

Sequence

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



Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.3
Level Of Service: B
Volume to Capacity (v/c): 0.012

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	4	8	252	6	9	233
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	8	252	6	9	233
Peak Hour Factor	0.7000	0.7000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	79	2	3	73
Total Analysis Volume [veh/h]	6	11	315	8	11	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.27	9.34	0.00	0.00	7.93	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	1.90	1.90	0.00	0.00	0.46	0.46
d_A, Approach Delay [s/veh]	10.38		0.00		0.29	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	B					

East Street Village TIS

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Scenario 1 1 2023 PM
6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.552	21.6	C
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.660	31.8	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.016	12.7	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: SH 42 / Pine Street

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.552

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	107	648	0	4	611	166	170	10	91	3	21	50
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	83	0	0	46	0	0	25
Total Hourly Volume [veh/h]	107	648	0	4	611	83	170	10	45	3	21	25
Peak Hour Factor	0.9300	0.9300	0.9300	0.8800	0.8800	0.8800	0.7900	0.7900	0.7900	0.8100	0.8100	0.8100
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]	29	174	0	1	174	24	54	3	14	1	6	8
Total Analysis Volume [veh/h]	115	697	0	5	694	94	215	13	57	4	26	31
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	10	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	76	0	0	56	0	0	29	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81	72	72	72	17	17	17	9
g / C, Green / Cycle	0.68	0.68	0.60	0.60	0.60	0.14	0.14	0.14	0.07
(v / s)_i Volume / Saturation Flow Rate	0.15	0.37	0.01	0.37	0.06	0.12	0.01	0.04	0.04
s, saturation flow rate [veh/h]	781	1870	748	1870	1589	1781	1870	1589	1711
c, Capacity [veh/h]	448	1263	346	1124	955	255	268	227	125
d1, Uniform Delay [s]	11.11	10.07	23.00	15.19	10.16	50.12	44.38	45.71	53.46
k, delay calibration	0.49	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.34	1.74	0.08	2.55	0.21	7.46	0.07	0.57	2.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.55	0.01	0.62	0.10	0.84	0.05	0.25	0.49
d, Delay for Lane Group [s/veh]	12.45	11.81	23.07	17.74	10.36	57.58	44.45	46.28	56.38
Lane Group LOS	B	B	C	B	B	E	D	D	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.14	9.41	0.10	12.27	1.09	6.81	0.34	1.55	1.87
50th-Percentile Queue Length [ft/ln]	28.51	235.22	2.41	306.69	27.33	170.22	8.54	38.87	46.86
95th-Percentile Queue Length [veh/ln]	2.05	14.44	0.17	18.01	1.97	11.09	0.62	2.80	3.37
95th-Percentile Queue Length [ft/ln]	51.32	360.98	4.33	450.30	49.19	277.20	15.38	69.96	84.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.45	11.81	11.81	23.07	17.74	10.36	57.58	44.45	46.28	56.38	56.38	56.38
Movement LOS	B	B	B	C	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	11.90			16.90			54.72			56.38		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	21.58											
Intersection LOS	C											
Intersection V/C	0.552											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1183			850			417			183		
d_b, Bicycle Delay [s]	10.01			19.84			37.61			49.51		
I_b,int, Bicycle LOS Score for Intersection	2.899			3.005			2.106			1.702		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 31.8
Level Of Service: C
Volume to Capacity (v/c): 0.660

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	16	570	151	175	506	3	3	2	8	155	4	207
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	76	0	0	2	0	0	4	0	0	104
Total Hourly Volume [veh/h]	16	570	75	175	506	1	3	2	4	155	4	103
Peak Hour Factor	0.8900	0.8900	0.8900	0.9200	0.9200	0.9200	0.6700	0.6700	0.6700	0.8800	0.8800	0.8800
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]	4	160	21	48	138	0	1	1	1	44	1	29
Total Analysis Volume [veh/h]	18	640	84	190	550	1	4	3	6	176	5	117
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	22	95	0	0	25	0	0	25	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	76	76	76	9	89	19	19	19
g / C, Green / Cycle	0.63	0.63	0.63	0.07	0.74	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.02	0.34	0.05	0.05	0.29	0.03	0.26	0.07
s, saturation flow rate [veh/h]	857	1870	1589	3459	1869	399	688	1589
c, Capacity [veh/h]	493	1185	1007	258	1386	102	168	252
d1, Uniform Delay [s]	14.95	12.24	8.50	54.34	5.68	43.70	53.85	45.86
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	1.77	0.16	4.06	0.85	0.55	91.24	1.33
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.54	0.08	0.74	0.40	0.13	1.08	0.46
d, Delay for Lane Group [s/veh]	15.09	14.01	8.66	58.40	6.53	44.25	145.09	47.19
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.27	9.65	0.87	2.96	4.80	0.35	9.38	3.27
50th-Percentile Queue Length [ft/ln]	6.71	241.24	21.80	73.90	120.06	8.63	234.50	81.79
95th-Percentile Queue Length [veh/ln]	0.48	14.74	1.57	5.32	8.40	0.62	14.89	5.89
95th-Percentile Queue Length [ft/ln]	12.08	368.60	39.24	133.03	209.91	15.54	372.30	147.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.09	14.01	8.66	58.40	6.53	6.53	44.25	44.25	44.25	145.09	145.09	47.19
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	13.43			19.83			44.25			106.65		
Approach LOS	B			B			D			F		
d_I, Intersection Delay [s/veh]	31.78											
Intersection LOS	C											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1484			317			317		
d_b, Bicycle Delay [s]	11.69			4.00			42.49			42.49		
I_b,int, Bicycle LOS Score for Intersection	2.909			2.786			1.588			2.223		
Bicycle LOS	C			C			A			B		

Sequence

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



Intersection Level Of Service Report

Intersection 3: Pine Street / East Street

Control Type:	Two-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	6	28	239	14	24	272
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	28	239	14	24	272
Peak Hour Factor	0.7900	0.7900	0.8300	0.8300	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	9	72	4	7	76
Total Analysis Volume [veh/h]	8	35	288	17	27	302
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	12.69	9.44	0.00	0.00	7.90	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	4.51	4.51	0.00	0.00	1.14	1.14
d_A, Approach Delay [s/veh]	10.05		0.00		0.65	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.95					
Intersection LOS	B					

Year 2025 Traffic Volume Scenarios

East Street Village TIS

Vistro File: C:\...\AM.vistro

Scenario 2 2025 Back AM

Report File: C:\...\2025 Back AM.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.519	19.7	B
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.588	31.1	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.012	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: SH 42 / Pine Street

Control Type:	Signalized	Delay (sec / veh):	19.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	82	588	6	11	662	150	155	13	89	1	10	14
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	1.0200	1.0000	1.0000	1.0200	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	3	0	0	75	0	0	45	0	0	7
Total Hourly Volume [veh/h]	82	600	3	11	675	75	155	13	44	1	10	7
Peak Hour Factor	0.9100	0.9100	0.9100	0.9500	0.9500	0.9500	0.8200	0.8200	0.8200	0.6900	0.6900	0.6900
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]	23	165	1	3	178	20	47	4	13	0	4	3
Total Analysis Volume [veh/h]	90	659	3	12	711	79	189	16	54	1	14	10
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	15	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	85	0	0	68	0	0	20	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83	74	74	74	15	15	15	9
g / C, Green / Cycle	0.69	0.69	0.62	0.62	0.62	0.13	0.13	0.13	0.07
(v / s)_i Volume / Saturation Flow Rate	0.12	0.35	0.02	0.38	0.05	0.11	0.01	0.03	0.01
s, saturation flow rate [veh/h]	775	1868	773	1870	1589	1781	1870	1589	1743
c, Capacity [veh/h]	460	1294	389	1158	984	228	239	203	125
d1, Uniform Delay [s]	10.07	8.79	20.09	14.03	9.15	51.07	46.04	47.25	52.50
k, delay calibration	0.44	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.85	1.45	0.15	2.44	0.16	7.60	0.12	0.69	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.51	0.03	0.61	0.08	0.83	0.07	0.27	0.20
d, Delay for Lane Group [s/veh]	10.91	10.24	20.24	16.47	9.31	58.67	46.16	47.95	53.28
Lane Group LOS	B	B	C	B	A	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.80	8.06	0.21	12.01	0.86	6.02	0.43	1.50	0.74
50th-Percentile Queue Length [ft/ln]	20.12	201.44	5.35	300.27	21.43	150.48	10.76	37.58	18.48
95th-Percentile Queue Length [veh/ln]	1.45	12.71	0.38	17.69	1.54	10.04	0.77	2.71	1.33
95th-Percentile Queue Length [ft/ln]	36.21	317.82	9.62	442.37	38.57	251.08	19.37	67.65	33.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.91	10.24	10.24	20.24	16.47	9.31	58.67	46.16	47.95	53.28	53.28	53.28
Movement LOS	B	B	B	C	B	A	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.32			15.82			55.66			53.28		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	19.69											
Intersection LOS	B											
Intersection V/C	0.519											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1333			1050			267			250		
d_b, Bicycle Delay [s]	6.67			13.54			45.07			45.94		
I_b,int, Bicycle LOS Score for Intersection	2.805			3.007			2.061			1.612		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 31.1
Level Of Service: C
Volume to Capacity (v/c): 0.588

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	3	452	146	201	542	0	3	3	9	151	2	228
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	1.0200	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000	1.0000	1.0200	1.0000	1.0200
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	75	0	0	0	0	0	5	0	0	117
Total Hourly Volume [veh/h]	3	461	74	205	553	0	3	3	4	154	2	116
Peak Hour Factor	0.8700	0.8700	0.8700	0.9000	0.9000	0.9000	0.7500	0.7500	0.7500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	132	21	57	154	0	1	1	1	42	1	32
Total Analysis Volume [veh/h]	3	530	85	228	614	0	4	4	5	167	2	126
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	24	97	0	0	23	0	0	23	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	77	77	77	10	91	17	17	17
g / C, Green / Cycle	0.64	0.64	0.64	0.09	0.76	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.00	0.28	0.05	0.07	0.33	0.03	0.24	0.08
s, saturation flow rate [veh/h]	808	1870	1589	3459	1870	445	707	1589
c, Capacity [veh/h]	464	1193	1014	300	1418	102	160	225
d1, Uniform Delay [s]	15.05	10.95	8.29	53.56	5.22	45.18	54.66	47.98
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	1.20	0.16	3.99	0.97	0.55	87.06	2.16
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.44	0.08	0.76	0.43	0.13	1.06	0.56
d, Delay for Lane Group [s/veh]	15.08	12.15	8.46	57.55	6.19	45.73	141.72	50.14
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.04	7.18	0.87	3.53	5.11	0.35	8.74	3.66
50th-Percentile Queue Length [ft/ln]	1.12	179.41	21.72	88.24	127.72	8.81	218.38	91.38
95th-Percentile Queue Length [veh/ln]	0.08	11.57	1.56	6.35	8.82	0.63	13.92	6.58
95th-Percentile Queue Length [ft/ln]	2.01	289.24	39.09	158.82	220.39	15.86	347.88	164.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.08	12.15	8.46	57.55	6.19	6.19	45.73	45.73	45.73	141.72	141.72	50.14
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	11.66			20.10			45.73			102.61		
Approach LOS	B			C			D			F		
d_I, Intersection Delay [s/veh]	31.10											
Intersection LOS	C											
Intersection V/C	0.588											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1517			283			283		
d_b, Bicycle Delay [s]	11.69			3.50			44.19			44.19		
I_b,int, Bicycle LOS Score for Intersection	2.703			2.949			1.589			2.239		
Bicycle LOS	B			C			A			B		

Sequence

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



Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	4	8	252	6	9	233
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	8	252	6	9	233
Peak Hour Factor	0.7000	0.7000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	3	79	2	3	73
Total Analysis Volume [veh/h]	6	11	315	8	11	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.27	9.34	0.00	0.00	7.93	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	1.90	1.90	0.00	0.00	0.46	0.46
d_A, Approach Delay [s/veh]	10.38		0.00		0.29	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	B					

East Street Village TIS

Vistro File: C:\...\pm.vistro

Scenario 2 2025 Back PM

Report File: C:\...\2025 Back PM.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.560	21.7	C
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.675	32.7	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.016	12.7	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: SH 42 / Pine Street

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.560

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	107	648	0	4	611	166	170	10	91	3	21	50
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	1.0200	1.0000	1.0000	1.0200	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	83	0	0	46	0	0	25
Total Hourly Volume [veh/h]	107	661	0	4	623	83	170	10	45	3	21	25
Peak Hour Factor	0.9300	0.9300	0.9300	0.8800	0.8800	0.8800	0.7900	0.7900	0.7900	0.8100	0.8100	0.8100
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]	29	178	0	1	177	24	54	3	14	1	6	8
Total Analysis Volume [veh/h]	115	711	0	5	708	94	215	13	57	4	26	31
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	10	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	76	0	0	56	0	0	29	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81	72	72	72	17	17	17	9
g / C, Green / Cycle	0.68	0.68	0.60	0.60	0.60	0.14	0.14	0.14	0.07
(v / s)_i Volume / Saturation Flow Rate	0.15	0.38	0.01	0.38	0.06	0.12	0.01	0.04	0.04
s, saturation flow rate [veh/h]	773	1870	738	1870	1589	1781	1870	1589	1711
c, Capacity [veh/h]	440	1263	338	1124	955	255	268	227	125
d1, Uniform Delay [s]	11.40	10.20	23.48	15.38	10.16	50.12	44.38	45.71	53.46
k, delay calibration	0.49	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.43	1.82	0.08	2.68	0.21	7.46	0.07	0.57	2.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.56	0.01	0.63	0.10	0.84	0.05	0.25	0.49
d, Delay for Lane Group [s/veh]	12.83	12.01	23.56	18.06	10.36	57.58	44.45	46.28	56.38
Lane Group LOS	B	B	C	B	B	E	D	D	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.15	9.72	0.10	12.68	1.09	6.81	0.34	1.55	1.87
50th-Percentile Queue Length [ft/ln]	28.69	243.04	2.44	317.06	27.33	170.22	8.54	38.87	46.86
95th-Percentile Queue Length [veh/ln]	2.07	14.83	0.18	18.52	1.97	11.09	0.62	2.80	3.37
95th-Percentile Queue Length [ft/ln]	51.64	370.87	4.39	463.07	49.19	277.20	15.38	69.96	84.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.83	12.01	12.01	23.56	18.06	10.36	57.58	44.45	46.28	56.38	56.38	56.38
Movement LOS	B	B	B	C	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	12.13			17.20			54.72			56.38		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	21.69											
Intersection LOS	C											
Intersection V/C	0.560											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1183			850			417			183		
d_b, Bicycle Delay [s]	10.01			19.84			37.61			49.51		
I_b,int, Bicycle LOS Score for Intersection	2.923			3.028			2.106			1.702		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 32.7
Level Of Service: C
Volume to Capacity (v/c): 0.675

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	16	570	151	175	506	3	3	2	8	155	4	207
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	1.0200	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000	1.0000	1.0200	1.0000	1.0200
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	77	0	0	2	0	0	4	0	0	106
Total Hourly Volume [veh/h]	16	581	77	179	516	1	3	2	4	158	4	105
Peak Hour Factor	0.8900	0.8900	0.8900	0.9200	0.9200	0.9200	0.6700	0.6700	0.6700	0.8800	0.8800	0.8800
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]	4	163	22	49	140	0	1	1	1	45	1	30
Total Analysis Volume [veh/h]	18	653	87	195	561	1	4	3	6	180	5	119
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	22	95	0	0	25	0	0	25	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	76	76	76	9	89	19	19	19
g / C, Green / Cycle	0.63	0.63	0.63	0.08	0.74	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.02	0.35	0.05	0.06	0.30	0.03	0.27	0.07
s, saturation flow rate [veh/h]	848	1870	1589	3459	1869	399	688	1589
c, Capacity [veh/h]	485	1182	1005	263	1386	102	168	252
d1, Uniform Delay [s]	15.24	12.47	8.59	54.24	5.73	43.70	53.85	45.92
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	1.86	0.17	4.07	0.88	0.55	98.88	1.38
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.55	0.09	0.74	0.41	0.13	1.10	0.47
d, Delay for Lane Group [s/veh]	15.38	14.34	8.76	58.31	6.61	44.25	152.73	47.30
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.27	10.01	0.91	3.03	4.94	0.35	9.73	3.33
50th-Percentile Queue Length [ft/ln]	6.79	250.32	22.74	75.81	123.53	8.63	243.35	83.33
95th-Percentile Queue Length [veh/ln]	0.49	15.20	1.64	5.46	8.59	0.62	15.50	6.00
95th-Percentile Queue Length [ft/ln]	12.23	380.05	40.94	136.47	214.67	15.54	387.58	149.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.38	14.34	8.76	58.31	6.61	6.61	44.25	44.25	44.25	152.73	152.73	47.30
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	13.72			19.93			44.25			111.46		
Approach LOS	B			B			D			F		
d_I, Intersection Delay [s/veh]	32.72											
Intersection LOS	C											
Intersection V/C	0.675											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1484			317			317		
d_b, Bicycle Delay [s]	11.69			4.00			42.49			42.49		
I_b,int, Bicycle LOS Score for Intersection	2.937			2.812			1.588			2.236		
Bicycle LOS	C			C			A			B		

Sequence

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



Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.7
Level Of Service: B
Volume to Capacity (v/c): 0.016

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	6	28	239	14	24	272
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	28	239	14	24	272
Peak Hour Factor	0.7900	0.7900	0.8300	0.8300	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	9	72	4	7	76
Total Analysis Volume [veh/h]	8	35	288	17	27	302
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	12.69	9.44	0.00	0.00	7.90	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	4.51	4.51	0.00	0.00	1.14	1.14
d_A, Approach Delay [s/veh]	10.05		0.00		0.65	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.95					
Intersection LOS	B					

East Street Village TIS

Vistro File: C:\...\AM.vistro

Scenario 3 2025 Total AM - Scenario 1

Report File: C:\...\2025 Total AM - Scenario 1.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.521	19.8	B
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.584	30.9	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.018	12.4	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.7	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.8	A

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: SH 42 / Pine Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 19.8
 Level Of Service: B
 Volume to Capacity (v/c): 0.521

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	82	588	6	11	662	150	155	13	89	1	10	14
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	1.0200	1.0000	1.0000	1.0200	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	1	1	2	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	3	0	0	76	0	0	45	0	0	7
Total Hourly Volume [veh/h]	82	603	3	11	676	75	157	13	44	1	10	7
Peak Hour Factor	0.9100	0.9100	0.9100	0.9500	0.9500	0.9500	0.8200	0.8200	0.8200	0.6900	0.6900	0.6900
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]	23	166	1	3	178	20	48	4	13	0	4	3
Total Analysis Volume [veh/h]	90	663	3	12	712	79	191	16	54	1	14	10
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	15	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	85	0	0	68	0	0	20	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83	74	74	74	15	15	15	9
g / C, Green / Cycle	0.69	0.69	0.62	0.62	0.62	0.13	0.13	0.13	0.07
(v / s)_i Volume / Saturation Flow Rate	0.12	0.36	0.02	0.38	0.05	0.11	0.01	0.03	0.01
s, saturation flow rate [veh/h]	775	1868	770	1870	1589	1781	1870	1589	1743
c, Capacity [veh/h]	458	1292	385	1156	983	230	241	205	125
d1, Uniform Delay [s]	10.15	8.89	20.33	14.13	9.21	51.00	45.92	47.13	52.50
k, delay calibration	0.44	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.85	1.47	0.15	2.46	0.16	7.60	0.11	0.68	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.52	0.03	0.62	0.08	0.83	0.07	0.26	0.20
d, Delay for Lane Group [s/veh]	11.01	10.36	20.48	16.59	9.37	58.60	46.04	47.81	53.28
Lane Group LOS	B	B	C	B	A	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.81	8.18	0.22	12.09	0.86	6.08	0.43	1.50	0.74
50th-Percentile Queue Length [ft/ln]	20.23	204.39	5.38	302.17	21.51	152.03	10.75	37.52	18.48
95th-Percentile Queue Length [veh/ln]	1.46	12.87	0.39	17.79	1.55	10.13	0.77	2.70	1.33
95th-Percentile Queue Length [ft/ln]	36.41	321.63	9.69	444.71	38.72	253.14	19.34	67.53	33.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.01	10.36	10.36	20.48	16.59	9.37	58.60	46.04	47.81	53.28	53.28	53.28
Movement LOS	B	B	B	C	B	A	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.44			15.94			55.60			53.28		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	19.80											
Intersection LOS	B											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1333			1050			267			250		
d_b, Bicycle Delay [s]	6.67			13.54			45.07			45.94		
I_b,int, Bicycle LOS Score for Intersection	2.812			3.010			2.065			1.612		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 30.9
Level Of Service: C
Volume to Capacity (v/c): 0.584

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	3	452	146	201	542	0	3	3	9	151	2	228
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	1.0200	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000	1.0000	1.0200	1.0000	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	1	3	3	5	0	1	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	75	0	0	1	0	0	7	0	0	117
Total Hourly Volume [veh/h]	5	461	74	205	553	0	6	6	7	154	3	116
Peak Hour Factor	0.8700	0.8700	0.8700	0.9000	0.9000	0.9000	0.7500	0.7500	0.7500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	132	21	57	154	0	2	2	2	42	1	32
Total Analysis Volume [veh/h]	6	530	85	228	614	0	8	8	9	167	3	126
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	24	97	0	0	23	0	0	23	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	77	77	77	10	91	17	17	17
g / C, Green / Cycle	0.64	0.64	0.64	0.09	0.76	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.01	0.28	0.05	0.07	0.33	0.06	0.23	0.08
s, saturation flow rate [veh/h]	808	1870	1589	3459	1870	425	725	1589
c, Capacity [veh/h]	464	1193	1014	300	1418	100	162	225
d1, Uniform Delay [s]	15.11	10.95	8.29	53.56	5.22	45.50	54.61	47.98
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	1.20	0.16	3.99	0.97	1.30	83.82	2.16
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.44	0.08	0.76	0.43	0.25	1.05	0.56
d, Delay for Lane Group [s/veh]	15.16	12.15	8.46	57.55	6.19	46.80	138.43	50.14
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.09	7.18	0.87	3.53	5.11	0.69	8.72	3.66
50th-Percentile Queue Length [ft/ln]	2.24	179.41	21.72	88.24	127.72	17.20	217.95	91.38
95th-Percentile Queue Length [veh/ln]	0.16	11.57	1.56	6.35	8.82	1.24	13.84	6.58
95th-Percentile Queue Length [ft/ln]	4.04	289.24	39.09	158.82	220.39	30.97	346.03	164.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.16	12.15	8.46	57.55	6.19	6.19	46.80	46.80	46.80	138.43	138.43	50.14
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	11.68			20.10			46.80			100.85		
Approach LOS	B			C			D			F		
d_I, Intersection Delay [s/veh]	30.94											
Intersection LOS	C											
Intersection V/C	0.584											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1517			283			283		
d_b, Bicycle Delay [s]	11.69			3.50			44.19			44.19		
I_b,int, Bicycle LOS Score for Intersection	2.708			2.951			1.612			2.241		
Bicycle LOS	B			C			A			B		

Sequence

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



Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.4
Level Of Service: B
Volume to Capacity (v/c): 0.018

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	4	8	252	6	9	233
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	2	0	1	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	10	252	7	10	233
Peak Hour Factor	0.7000	0.7000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	79	2	3	73
Total Analysis Volume [veh/h]	9	14	315	9	13	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.39	9.41	0.00	0.00	7.94	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	2.67	2.67	0.00	0.00	0.55	0.55
d_A, Approach Delay [s/veh]	10.57		0.00		0.34	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.53					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	2	1	1	2	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	14	16	1	2	6
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	5	0	1	2
Total Analysis Volume [veh/h]	2	16	19	1	2	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	0.00	8.74	8.43
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.00	0.00	0.66	0.66
d_A, Approach Delay [s/veh]	0.81		0.00		8.50	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.94					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	2	6	1	2	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	14	21	1	2	6
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	6	0	1	2
Total Analysis Volume [veh/h]	2	16	25	1	2	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.27	0.00	0.00	0.00	8.77	8.46
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.00	0.00	0.66	0.66
d_A, Approach Delay [s/veh]	0.81		0.00		8.53	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.72					
Intersection LOS	A					

East Street Village TIS

Vistro File: C:\...\pm.vistro

Scenario 3 3 2025 Total PM - Scenario 1

Report File: C:\...\2025 Total PM - Scenario 1.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.563	21.9	C
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.656	31.5	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.019	12.9	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.1	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.1	A

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: SH 42 / Pine Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 21.9
Level Of Service: C
Volume to Capacity (v/c): 0.563

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	107	648	0	4	611	166	170	10	91	3	21	50
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	1.0200	1.0000	1.0000	1.0200	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	3	4	2	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	85	0	0	46	0	0	25
Total Hourly Volume [veh/h]	107	663	0	4	626	85	172	10	45	3	21	25
Peak Hour Factor	0.9300	0.9300	0.9300	0.8800	0.8800	0.8800	0.7900	0.7900	0.7900	0.8100	0.8100	0.8100
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]	29	178	0	1	178	24	54	3	14	1	6	8
Total Analysis Volume [veh/h]	115	713	0	5	711	97	218	13	57	4	26	31
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	10	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	76	0	0	56	0	0	29	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81	72	72	72	17	17	17	9
g / C, Green / Cycle	0.67	0.67	0.60	0.60	0.60	0.14	0.14	0.14	0.07
(v / s)_i Volume / Saturation Flow Rate	0.15	0.38	0.01	0.38	0.06	0.12	0.01	0.04	0.04
s, saturation flow rate [veh/h]	770	1870	737	1870	1589	1781	1870	1589	1711
c, Capacity [veh/h]	435	1260	335	1121	952	258	271	230	125
d1, Uniform Delay [s]	11.58	10.32	23.76	15.55	10.26	50.01	44.20	45.52	53.46
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.47	1.84	0.08	2.74	0.21	7.46	0.07	0.56	2.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.57	0.01	0.63	0.10	0.85	0.05	0.25	0.49
d, Delay for Lane Group [s/veh]	13.05	12.17	23.84	18.29	10.48	57.47	44.27	46.08	56.38
Lane Group LOS	B	B	C	B	B	E	D	D	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.16	9.84	0.10	12.85	1.14	6.90	0.34	1.55	1.87
50th-Percentile Queue Length [ft/ln]	28.95	245.91	2.45	321.13	28.41	172.51	8.52	38.77	46.86
95th-Percentile Queue Length [veh/ln]	2.08	14.98	0.18	18.72	2.05	11.21	0.61	2.79	3.37
95th-Percentile Queue Length [ft/ln]	52.12	374.50	4.42	468.08	51.14	280.22	15.34	69.78	84.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.05	12.17	12.17	23.84	18.29	10.48	57.47	44.27	46.08	56.38	56.38	56.38
Movement LOS	B	B	B	C	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	12.29			17.40			54.62			56.38		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	21.85											
Intersection LOS	C											
Intersection V/C	0.563											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1183			850			417			183		
d_b, Bicycle Delay [s]	10.01			19.84			37.61			49.51		
I_b,int, Bicycle LOS Score for Intersection	2.926			3.041			2.111			1.702		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 31.5
Level Of Service: C
Volume to Capacity (v/c): 0.656

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	16	570	151	175	506	3	3	2	8	155	4	207
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	1.0200	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000	1.0000	1.0200	1.0000	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	0	0	0	3	2	2	3	0	4	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	77	0	0	3	0	0	6	0	0	106
Total Hourly Volume [veh/h]	21	581	77	179	516	3	5	4	5	158	8	105
Peak Hour Factor	0.8900	0.8900	0.8900	0.9200	0.9200	0.9200	0.6700	0.6700	0.6700	0.8800	0.8800	0.8800
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	163	22	49	140	1	2	1	2	45	2	30
Total Analysis Volume [veh/h]	24	653	87	195	561	3	7	6	7	180	9	119
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	22	95	0	0	25	0	0	25	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	76	76	76	9	89	19	19	19
g / C, Green / Cycle	0.63	0.63	0.63	0.08	0.74	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.35	0.05	0.06	0.30	0.06	0.25	0.07
s, saturation flow rate [veh/h]	846	1870	1589	3459	1868	340	755	1589
c, Capacity [veh/h]	484	1182	1005	263	1385	94	178	252
d1, Uniform Delay [s]	15.39	12.47	8.59	54.24	5.74	43.95	53.62	45.92
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	1.86	0.17	4.07	0.89	1.10	84.54	1.38
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.55	0.09	0.74	0.41	0.21	1.06	0.47
d, Delay for Lane Group [s/veh]	15.59	14.34	8.76	58.31	6.63	45.05	138.17	47.30
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.37	10.01	0.91	3.03	4.97	0.54	9.61	3.33
50th-Percentile Queue Length [ft/ln]	9.14	250.32	22.74	75.81	124.21	13.45	240.14	83.33
95th-Percentile Queue Length [veh/ln]	0.66	15.20	1.64	5.46	8.62	0.97	15.09	6.00
95th-Percentile Queue Length [ft/ln]	16.46	380.06	40.94	136.47	215.60	24.21	377.36	149.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.59	14.34	8.76	58.31	6.63	6.63	45.05	45.05	45.05	138.17	138.17	47.30
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	13.74			19.90			45.05			103.06		
Approach LOS	B			B			D			F		
d_I, Intersection Delay [s/veh]	31.47											
Intersection LOS	C											
Intersection V/C	0.656											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1484			317			317		
d_b, Bicycle Delay [s]	11.69			4.00			42.49			42.49		
I_b,int, Bicycle LOS Score for Intersection	2.947			2.817			1.603			2.243		
Bicycle LOS	C			C			A			B		

Sequence

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



Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.9
Level Of Service: B
Volume to Capacity (v/c): 0.019

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	6	28	239	14	24	272
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	2	0	2	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	30	239	16	28	272
Peak Hour Factor	0.7900	0.7900	0.8300	0.8300	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	9	72	5	8	76
Total Analysis Volume [veh/h]	9	38	288	19	31	302
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	12.86	9.48	0.00	0.00	7.91	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	5.01	5.01	0.00	0.00	1.31	1.31
d_A, Approach Delay [s/veh]	10.13		0.00		0.74	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.05					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	38	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	1	3	3	1	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	35	41	3	1	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	10	12	1	0	1
Total Analysis Volume [veh/h]	7	41	48	4	1	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	0.00	9.07	8.56
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.29	0.29	0.00	0.00	0.46	0.46
d_A, Approach Delay [s/veh]	1.07		0.00		8.64	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.97					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	36	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	6	4	3	1	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	40	40	3	1	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	12	12	1	0	1
Total Analysis Volume [veh/h]	7	47	47	4	1	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	0.00	9.10	8.55
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.29	0.29	0.00	0.00	0.46	0.46
d_A, Approach Delay [s/veh]	0.95		0.00		8.64	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.93					
Intersection LOS	A					

East Street Village TIS

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Scenario 4 2025 Total AM - Scenatio 2

Report File: C:\...\2025 Total AM - Scenario 2.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.521	19.8	B
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.578	30.5	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.014	12.4	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.7	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.7	A

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: SH 42 / Pine Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 19.8
Level Of Service: B
Volume to Capacity (v/c): 0.521

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	82	588	6	11	662	150	155	13	89	1	10	14
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	1.0200	1.0000	1.0000	1.0200	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	1	1	2	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	3	0	0	76	0	0	45	0	0	7
Total Hourly Volume [veh/h]	82	603	3	11	676	75	157	13	44	1	10	7
Peak Hour Factor	0.9100	0.9100	0.9100	0.9500	0.9500	0.9500	0.8200	0.8200	0.8200	0.6900	0.6900	0.6900
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]	23	166	1	3	178	20	48	4	13	0	4	3
Total Analysis Volume [veh/h]	90	663	3	12	712	79	191	16	54	1	14	10
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	15	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	85	0	0	68	0	0	20	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	83	83	74	74	74	15	15	15	9
g / C, Green / Cycle	0.69	0.69	0.62	0.62	0.62	0.13	0.13	0.13	0.07
(v / s)_i Volume / Saturation Flow Rate	0.12	0.36	0.02	0.38	0.05	0.11	0.01	0.03	0.01
s, saturation flow rate [veh/h]	775	1868	770	1870	1589	1781	1870	1589	1743
c, Capacity [veh/h]	458	1292	385	1156	983	230	241	205	125
d1, Uniform Delay [s]	10.15	8.89	20.33	14.13	9.21	51.00	45.92	47.13	52.50
k, delay calibration	0.44	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.85	1.47	0.15	2.46	0.16	7.60	0.11	0.68	0.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.52	0.03	0.62	0.08	0.83	0.07	0.26	0.20
d, Delay for Lane Group [s/veh]	11.01	10.36	20.48	16.59	9.37	58.60	46.04	47.81	53.28
Lane Group LOS	B	B	C	B	A	E	D	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.81	8.18	0.22	12.09	0.86	6.08	0.43	1.50	0.74
50th-Percentile Queue Length [ft/ln]	20.23	204.39	5.38	302.17	21.51	152.03	10.75	37.52	18.48
95th-Percentile Queue Length [veh/ln]	1.46	12.87	0.39	17.79	1.55	10.13	0.77	2.70	1.33
95th-Percentile Queue Length [ft/ln]	36.41	321.63	9.69	444.71	38.72	253.14	19.34	67.53	33.27

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.01	10.36	10.36	20.48	16.59	9.37	58.60	46.04	47.81	53.28	53.28	53.28
Movement LOS	B	B	B	C	B	A	E	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.44			15.94			55.60			53.28		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	19.80											
Intersection LOS	B											
Intersection V/C	0.521											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersectio	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1333			1050			267			250		
d_b, Bicycle Delay [s]	6.67			13.54			45.07			45.94		
I_b,int, Bicycle LOS Score for Intersection	2.812			3.010			2.065			1.612		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 30.5
Level Of Service: C
Volume to Capacity (v/c): 0.578

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	3	452	146	201	542	0	3	3	9	151	2	228
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	1.0200	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000	1.0000	1.0200	1.0000	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	1	3	3	4	0	1	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	75	0	0	1	0	0	7	0	0	117
Total Hourly Volume [veh/h]	4	461	74	205	553	0	6	6	6	154	3	116
Peak Hour Factor	0.8700	0.8700	0.8700	0.9000	0.9000	0.9000	0.7500	0.7500	0.7500	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	132	21	57	154	0	2	2	2	42	1	32
Total Analysis Volume [veh/h]	5	530	85	228	614	0	8	8	8	167	3	126
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	24	97	0	0	23	0	0	23	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	77	77	77	10	91	17	17	17
g / C, Green / Cycle	0.64	0.64	0.64	0.09	0.76	0.14	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.01	0.28	0.05	0.07	0.33	0.06	0.23	0.08
s, saturation flow rate [veh/h]	808	1870	1589	3459	1870	404	742	1589
c, Capacity [veh/h]	464	1193	1014	300	1418	97	165	225
d1, Uniform Delay [s]	15.09	10.95	8.29	53.56	5.22	45.50	54.56	47.98
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	1.20	0.16	3.99	0.97	1.30	78.85	2.16
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.01	0.44	0.08	0.76	0.43	0.25	1.03	0.56
d, Delay for Lane Group [s/veh]	15.13	12.15	8.46	57.55	6.19	46.80	133.41	50.14
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.07	7.18	0.87	3.53	5.11	0.66	8.62	3.66
50th-Percentile Queue Length [ft/ln]	1.87	179.41	21.72	88.24	127.72	16.52	215.53	91.38
95th-Percentile Queue Length [veh/ln]	0.13	11.57	1.56	6.35	8.82	1.19	13.63	6.58
95th-Percentile Queue Length [ft/ln]	3.36	289.24	39.09	158.82	220.39	29.74	340.68	164.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.13	12.15	8.46	57.55	6.19	6.19	46.80	46.80	46.80	133.41	133.41	50.14
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	11.67			20.10			46.80			97.96		
Approach LOS	B			C			D			F		
d_I, Intersection Delay [s/veh]	30.46											
Intersection LOS	C											
Intersection V/C	0.578											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1517			283			283		
d_b, Bicycle Delay [s]	11.69			3.50			44.19			44.19		
I_b,int, Bicycle LOS Score for Intersection	2.706			2.951			1.611			2.241		
Bicycle LOS	B			C			A			B		

Sequence

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



Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.4
Level Of Service: B
Volume to Capacity (v/c): 0.014

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	4	8	252	6	9	233
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	2	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	10	252	6	10	233
Peak Hour Factor	0.7000	0.7000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	79	2	3	73
Total Analysis Volume [veh/h]	7	14	315	8	13	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.35	9.37	0.00	0.00	7.93	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	2.35	2.35	0.00	0.00	0.55	0.55
d_A, Approach Delay [s/veh]	10.37		0.00		0.34	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.50					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	2	1	1	2	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	14	16	1	2	5
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	5	0	1	1
Total Analysis Volume [veh/h]	1	16	19	1	2	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	0.00	8.72	8.43
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.04	0.04	0.00	0.00	0.58	0.58
d_A, Approach Delay [s/veh]	0.43		0.00		8.50	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.67					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	5	1	2	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	13	20	1	2	5
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	6	0	1	1
Total Analysis Volume [veh/h]	1	15	24	1	2	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.27	0.00	0.00	0.00	8.74	8.45
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.04	0.04	0.00	0.00	0.59	0.59
d_A, Approach Delay [s/veh]	0.45		0.00		8.52	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.54					
Intersection LOS	A					

East Street Village TIS

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Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.561	21.7	C
2	SH 42 / Lock Street	Signalized	HCM 7th Edition	WB Left	0.655	31.3	C
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.019	12.8	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.0	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.1	A

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: SH 42 / Pine Street

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.561

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	1	0	0	1	0	0	0
Entry Pocket Length [ft]	300.00	100.00	100.00	100.00	100.00	135.00	100.00	100.00	50.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	107	648	0	4	611	166	170	10	91	3	21	50
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	1.0200	1.0000	1.0000	1.0200	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	2	4	1	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	85	0	0	46	0	0	25
Total Hourly Volume [veh/h]	107	663	0	4	625	85	171	10	45	3	21	25
Peak Hour Factor	0.9300	0.9300	0.9300	0.8800	0.8800	0.8800	0.7900	0.7900	0.7900	0.8100	0.8100	0.8100
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]	29	178	0	1	178	24	54	3	14	1	6	8
Total Analysis Volume [veh/h]	115	713	0	5	710	97	216	13	57	4	26	31
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	10	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	76	0	0	56	0	0	29	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	81	81	72	72	72	17	17	17	9
g / C, Green / Cycle	0.68	0.68	0.60	0.60	0.60	0.14	0.14	0.14	0.07
(v / s)_i Volume / Saturation Flow Rate	0.15	0.38	0.01	0.38	0.06	0.12	0.01	0.04	0.04
s, saturation flow rate [veh/h]	770	1870	737	1870	1589	1781	1870	1589	1711
c, Capacity [veh/h]	437	1262	336	1123	954	256	269	228	125
d1, Uniform Delay [s]	11.48	10.25	23.62	15.45	10.21	50.08	44.32	45.65	53.46
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.45	1.83	0.08	2.71	0.21	7.46	0.07	0.57	2.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.56	0.01	0.63	0.10	0.84	0.05	0.25	0.49
d, Delay for Lane Group [s/veh]	12.94	12.08	23.70	18.16	10.42	57.54	44.39	46.21	56.38
Lane Group LOS	B	B	C	B	B	E	D	D	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.15	9.79	0.10	12.77	1.13	6.84	0.34	1.55	1.87
50th-Percentile Queue Length [ft/ln]	28.81	244.75	2.45	319.17	28.31	170.98	8.54	38.83	46.86
95th-Percentile Queue Length [veh/ln]	2.07	14.92	0.18	18.63	2.04	11.13	0.61	2.80	3.37
95th-Percentile Queue Length [ft/ln]	51.86	373.04	4.40	465.66	50.96	278.21	15.37	69.90	84.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.94	12.08	12.08	23.70	18.16	10.42	57.54	44.39	46.21	56.38	56.38	56.38
Movement LOS	B	B	B	C	B	B	E	D	D	E	E	E
d_A, Approach Delay [s/veh]	12.20			17.27			54.69			56.38		
Approach LOS	B			B			D			E		
d_I, Intersection Delay [s/veh]	21.74											
Intersection LOS	C											
Intersection V/C	0.561											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersectio	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1183			850			417			183		
d_b, Bicycle Delay [s]	10.01			19.84			37.61			49.51		
I_b,int, Bicycle LOS Score for Intersection	2.926			3.040			2.107			1.702		
Bicycle LOS	C			C			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 31.3
Level Of Service: C
Volume to Capacity (v/c): 0.655

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
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	1	2	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	540.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	540.00	0.00	0.00	0.00	0.00	0.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	16	570	151	175	506	3	3	2	8	155	4	207
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	1.0200	1.0200	1.0200	1.0200	1.0000	1.0000	1.0000	1.0000	1.0200	1.0000	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	0	0	0	2	2	2	2	0	3	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	77	0	0	3	0	0	5	0	0	106
Total Hourly Volume [veh/h]	20	581	77	179	516	2	5	4	5	158	7	105
Peak Hour Factor	0.8900	0.8900	0.8900	0.9200	0.9200	0.9200	0.6700	0.6700	0.6700	0.8800	0.8800	0.8800
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	163	22	49	140	1	2	1	2	45	2	30
Total Analysis Volume [veh/h]	22	653	87	195	561	2	7	6	7	180	8	119
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	6	0	5	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	15	0	8	15	0	0	8	0	0	8	0
Maximum Green [s]	0	40	0	30	40	0	0	20	0	0	20	0
Amber [s]	0.0	4.0	0.0	3.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
All red [s]	0.0	2.0	0.0	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Split [s]	0	73	0	22	95	0	0	25	0	0	25	0
Vehicle Extension [s]	0.0	5.0	0.0	3.0	5.0	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	10	0	0	10	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	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	4.0	0.0	2.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	0.0
Minimum Recall		Yes		No	Yes			No			No	
Maximum Recall		No		No	No			No			No	
Pedestrian Recall		No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	40.0	0.0	40.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	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	R	L	C	C	C	R
C, Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	6.00	6.00	6.00	4.00	6.00	6.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	4.00	4.00	4.00	2.00	4.00	4.00	4.00	4.00
g_i, Effective Green Time [s]	76	76	76	9	89	19	19	19
g / C, Green / Cycle	0.63	0.63	0.63	0.08	0.74	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.03	0.35	0.05	0.06	0.30	0.06	0.25	0.07
s, saturation flow rate [veh/h]	847	1870	1589	3459	1869	340	752	1589
c, Capacity [veh/h]	484	1182	1005	263	1386	94	178	252
d1, Uniform Delay [s]	15.33	12.47	8.59	54.24	5.73	43.95	53.63	45.92
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.11	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	1.86	0.17	4.07	0.89	1.10	83.30	1.38
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.55	0.09	0.74	0.41	0.21	1.06	0.47
d, Delay for Lane Group [s/veh]	15.51	14.34	8.76	58.31	6.62	45.05	136.94	47.30
Lane Group LOS	B	B	A	E	A	D	F	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.33	10.01	0.91	3.03	4.95	0.54	9.53	3.33
50th-Percentile Queue Length [ft/ln]	8.35	250.32	22.74	75.81	123.87	13.45	238.30	83.33
95th-Percentile Queue Length [veh/ln]	0.60	15.20	1.64	5.46	8.61	0.97	14.97	6.00
95th-Percentile Queue Length [ft/ln]	15.03	380.06	40.94	136.47	215.14	24.21	374.29	149.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.51	14.34	8.76	58.31	6.62	6.62	45.05	45.05	45.05	136.94	136.94	47.30
Movement LOS	B	B	A	E	A	A	D	D	D	F	F	D
d_A, Approach Delay [s/veh]	13.73			19.92			45.05			102.19		
Approach LOS	B			B			D			F		
d_I, Intersection Delay [s/veh]	31.31											
Intersection LOS	C											
Intersection V/C	0.655											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersectio	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1117			1484			317			317		
d_b, Bicycle Delay [s]	11.69			4.00			42.49			42.49		
I_b,int, Bicycle LOS Score for Intersection	2.944			2.815			1.601			2.241		
Bicycle LOS	C			C			A			B		

Sequence

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



Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	6	28	239	14	24	272
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	0	1	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	29	239	15	28	272
Peak Hour Factor	0.7900	0.7900	0.8300	0.8300	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	9	72	5	8	76
Total Analysis Volume [veh/h]	9	37	288	18	31	302
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.04	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	12.84	9.47	0.00	0.00	7.91	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.00	0.00	0.05	0.05
95th-Percentile Queue Length [ft/ln]	4.91	4.91	0.00	0.00	1.31	1.31
d_A, Approach Delay [s/veh]	10.13		0.00		0.74	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.04					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	38	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	1	2	2	1	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	35	40	2	1	3
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	12	1	0	1
Total Analysis Volume [veh/h]	6	41	47	2	1	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	0.00	9.05	8.54
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.25	0.25	0.00	0.00	0.38	0.38
d_A, Approach Delay [s/veh]	0.93		0.00		8.64	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.86					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	36	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	5	3	2	1	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	39	39	2	1	3
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	11	11	1	0	1
Total Analysis Volume [veh/h]	6	46	46	2	1	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.32	0.00	0.00	0.00	9.07	8.54
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.25	0.25	0.00	0.00	0.38	0.38
d_A, Approach Delay [s/veh]	0.84		0.00		8.65	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.83					
Intersection LOS	A					

Year 2045 Traffic Volume Scenarios

East Street Village TIS

Vistro File: C:\...\AM.vistro

Scenario 5 2045 Back AM

Report File: C:\...\2045 Back AM.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.335	13.4	B
2	SH 42 / Lock Street	Roundabout	HCM 7th Edition	EB Right		7.4	A
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.012	12.4	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	SB Thru	0.000	0.0	A

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: SH 42 / Pine Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.4
 Level Of Service: B
 Volume to Capacity (v/c): 0.335

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	82	588	6	11	662	150	155	13	89	1	10	14
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	1.2400	1.0000	1.0000	1.2400	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	2	2	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	3	0	0	76	0	0	45	0	0	7
Total Hourly Volume [veh/h]	82	729	3	11	821	76	157	13	44	1	10	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9500	0.9500	0.9500	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	22	198	1	3	216	20	43	4	12	0	3	2
Total Analysis Volume [veh/h]	89	792	3	12	864	80	171	14	48	1	11	8
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	15	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	85	0	0	68	0	0	20	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	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	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	90	90	90	81	81	81	10	10	10	7
g / C, Green / Cycle	0.75	0.75	0.75	0.67	0.67	0.67	0.08	0.08	0.08	0.06
(v / s)_i Volume / Saturation Flow Rate	0.13	0.21	0.21	0.02	0.26	0.26	0.05	0.05	0.03	0.01
s, saturation flow rate [veh/h]	683	1870	1867	683	1870	1815	1781	1794	1589	1743
c, Capacity [veh/h]	530	1397	1395	459	1260	1223	149	150	133	107
d1, Uniform Delay [s]	5.02	4.88	4.88	10.55	8.58	8.58	53.14	53.14	51.96	53.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, 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]	0.68	0.51	0.51	0.11	0.87	0.90	4.15	4.10	1.64	0.84
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	0.17	0.28	0.28	0.03	0.38	0.38	0.62	0.62	0.36	0.19
d, Delay for Lane Group [s/veh]	5.71	5.40	5.40	10.65	9.45	9.48	57.29	57.24	53.60	54.34
Lane Group LOS	A	A	A	B	A	A	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.62	3.00	3.00	0.15	5.44	5.29	2.86	2.88	1.43	0.60
50th-Percentile Queue Length [ft/ln]	15.50	74.98	74.89	3.68	136.03	132.24	71.59	71.92	35.75	14.99
95th-Percentile Queue Length [veh/ln]	1.12	5.40	5.39	0.27	9.27	9.06	5.15	5.18	2.57	1.08
95th-Percentile Queue Length [ft/ln]	27.90	134.97	134.80	6.63	231.66	226.54	128.86	129.46	64.36	26.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.71	5.40	5.40	10.65	9.47	9.48	57.27	57.24	53.60	54.34	54.34	54.34
Movement LOS	A	A	A	B	A	A	E	E	D	D	D	D
d_A, Approach Delay [s/veh]	5.43			9.48			56.51			54.34		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	13.43											
Intersection LOS	B											
Intersection V/C	0.335											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1333			1050			267			250		
d_b, Bicycle Delay [s]	6.67			13.54			45.07			45.94		
I_b,int, Bicycle LOS Score for Intersection	2.291			2.411			2.018			1.604		
Bicycle LOS	B			B			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Roundabout
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 7.4
Level Of Service: A

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
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	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	3	452	146	201	542	0	3	3	9	151	2	228
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	1.2400	1.2400	1.2400	1.2400	1.0000	1.0000	1.0000	1.0000	1.3000	1.0000	1.3000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	0	0	0	0	0	0	1	1	0	1	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]	4	560	181	249	672	0	3	4	10	196	3	296
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	152	49	68	183	0	1	1	3	53	1	80
Total Analysis Volume [veh/h]	4	609	197	271	730	0	3	4	11	213	3	322
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	284			224			1238			628		
Exiting Flow Rate [veh/h]	973			953			7			481		
Demand Flow Rate [veh/h]	4	560	181	249	672	0	3	4	10	196	3	296
Adjusted Demand Flow Rate [veh/h]	4	609	197	271	730	0	3	4	11	213	3	322

Lanes

Override Calculated Critical Headway	No	No	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1420.00	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00091	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	313	313	201	480	542	19	221	329
Capacity of Entry and Bypass Lanes [veh/h]	1098	1098	1098	1158	1158	391	802	802
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1076	1076	1076	1136	1136	383	786	786
X, volume / capacity	0.28	0.28	0.18	0.41	0.47	0.05	0.27	0.41

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	B	A	A
95th-Percentile Queue Length [veh]	1.18	1.18	0.67	2.07	2.55	0.15	1.12	2.01
95th-Percentile Queue Length [ft]	29.53	29.53	16.72	51.80	63.68	3.69	27.99	50.31
Approach Delay [s/veh]	5.84			7.89		10.11	8.93	
Approach LOS	A			A		B	A	
Intersection Delay [s/veh]	7.44							
Intersection LOS	A							

Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	4	8	252	6	9	233
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	4	10	252	6	11	233
Peak Hour Factor	0.7000	0.7000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	4	79	2	3	73
Total Analysis Volume [veh/h]	6	14	315	8	14	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.37	9.36	0.00	0.00	7.93	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	2.19	2.19	0.00	0.00	0.59	0.59
d_A, Approach Delay [s/veh]	10.26		0.00		0.36	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	17	0	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	5	0	0	0
Total Analysis Volume [veh/h]	0	16	20	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	0.00	8.69	8.40
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.54	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	2	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	17	0	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	5	0	0	0
Total Analysis Volume [veh/h]	0	16	20	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	0.00	8.69	8.40
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.54	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

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6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.362	15.0	B
2	SH 42 / Lock Street	Roundabout	HCM 7th Edition	WB Right		8.0	A
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.029	13.5	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: SH 42 / Pine Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 15.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.362

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	107	648	0	4	611	166	170	10	91	3	21	50
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	1.2400	1.0000	1.0000	1.2400	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	17	14	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	92	0	0	46	0	0	25
Total Hourly Volume [veh/h]	107	804	0	4	758	91	184	10	45	3	21	25
Peak Hour Factor	0.9300	0.9300	0.9300	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	29	216	0	1	206	25	50	3	12	1	6	7
Total Analysis Volume [veh/h]	115	865	0	4	824	99	200	11	49	3	23	27
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	10	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	76	0	0	56	0	0	29	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	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	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	89	89	89	80	80	80	10	10	10	8
g / C, Green / Cycle	0.74	0.74	0.74	0.66	0.66	0.66	0.08	0.08	0.08	0.07
(v / s)_i Volume / Saturation Flow Rate	0.16	0.23	0.23	0.01	0.25	0.25	0.06	0.06	0.03	0.03
s, saturation flow rate [veh/h]	697	1870	1870	639	1870	1801	1781	1790	1589	1711
c, Capacity [veh/h]	533	1381	1381	421	1242	1196	149	150	133	119
d1, Uniform Delay [s]	5.42	5.33	5.33	11.46	9.03	9.03	53.55	53.55	51.99	53.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, 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]	0.93	0.59	0.59	0.04	0.88	0.91	6.02	5.97	1.70	2.61
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	0.22	0.31	0.31	0.01	0.38	0.38	0.71	0.71	0.37	0.45
d, Delay for Lane Group [s/veh]	6.34	5.93	5.93	11.51	9.91	9.95	59.57	59.52	53.69	56.23
Lane Group LOS	A	A	A	B	A	A	E	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.85	3.50	3.50	0.05	5.51	5.32	3.35	3.36	1.46	1.63
50th-Percentile Queue Length [ft/ln]	21.31	87.53	87.53	1.29	137.80	132.97	83.63	83.92	36.54	40.63
95th-Percentile Queue Length [veh/ln]	1.53	6.30	6.30	0.09	9.36	9.10	6.02	6.04	2.63	2.93
95th-Percentile Queue Length [ft/ln]	38.36	157.56	157.56	2.32	234.06	227.53	150.54	151.05	65.77	73.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.34	5.93	5.93	11.51	9.93	9.95	59.55	59.52	53.69	56.23	56.23	56.23
Movement LOS	A	A	A	B	A	A	E	E	D	E	E	E
d_A, Approach Delay [s/veh]	5.98			9.94			58.44			56.23		
Approach LOS	A			A			E			E		
d_I, Intersection Delay [s/veh]	14.97											
Intersection LOS	B											
Intersection V/C	0.362											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1183			850			417			183		
d_b, Bicycle Delay [s]	10.01			19.84			37.61			49.51		
I_b,int, Bicycle LOS Score for Intersection	2.368			2.400			2.065			1.688		
Bicycle LOS	B			B			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Roundabout
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 8.0
Level Of Service: A

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
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	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	16	570	151	175	506	3	3	2	8	155	4	207
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	1.2400	1.2400	1.2400	1.2400	1.0000	1.0000	1.0000	1.0000	1.3000	1.0000	1.3000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	0	0	0	0	0	0	7	11	0	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	707	187	217	627	3	3	9	19	202	13	269
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	8	192	51	59	170	1	1	2	5	55	4	73
Total Analysis Volume [veh/h]	32	768	203	236	682	3	3	10	21	220	14	292
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	254			271			1161			819		
Exiting Flow Rate [veh/h]	941			1084			50			458		
Demand Flow Rate [veh/h]	29	707	187	217	627	3	3	9	19	202	13	269
Adjusted Demand Flow Rate [veh/h]	32	768	203	236	682	3	3	10	21	220	14	292

Lanes

Override Calculated Critical Headway	No	No	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1420.00	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00091	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	408	408	208	442	498	35	239	298
Capacity of Entry and Bypass Lanes [veh/h]	1127	1127	1127	1110	1110	423	674	674
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1105	1105	1105	1088	1088	415	661	661
X, volume / capacity	0.36	0.36	0.18	0.40	0.45	0.08	0.35	0.44

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A	B	B
95th-Percentile Queue Length [veh]	1.67	1.67	0.67	1.94	2.37	0.27	1.60	2.26
95th-Percentile Queue Length [ft]	41.77	41.77	16.78	48.44	59.20	6.67	39.94	56.62
Approach Delay [s/veh]	6.50			7.87		9.88	11.14	
Approach LOS	A			A		A	B	
Intersection Delay [s/veh]	8.04							
Intersection LOS	A							

Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.029

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	6	28	239	14	24	272
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	14	0	4	17	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	42	239	18	41	272
Peak Hour Factor	0.7900	0.7900	0.8300	0.8300	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	13	72	5	11	76
Total Analysis Volume [veh/h]	13	53	288	22	46	302
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	13.50	9.66	0.00	0.00	7.94	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.30	0.30	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	7.42	7.42	0.00	0.00	1.97	1.97
d_A, Approach Delay [s/veh]	10.42		0.00		1.05	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.45					
Intersection LOS	B					

East Street Village TIS

Vistro File: C:\...\AM.vistro

Scenario 6 2045 Total AM - Scenario 1

Report File: C:\...\2045 Total AM - Scenario 1.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.336	13.5	B
2	SH 42 / Lock Street	Roundabout	HCM 7th Edition	EB Right		7.5	A
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.018	12.5	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.8	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.8	A

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: SH 42 / Pine Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 13.5
Level Of Service: B
Volume to Capacity (v/c): 0.336

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	82	588	6	11	662	150	155	13	89	1	10	14
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	1.2400	1.0000	1.0000	1.2400	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	1	3	4	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	3	0	0	77	0	0	45	0	0	7
Total Hourly Volume [veh/h]	82	732	3	11	822	76	159	13	44	1	10	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9500	0.9500	0.9500	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	22	199	1	3	216	20	43	4	12	0	3	2
Total Analysis Volume [veh/h]	89	796	3	12	865	80	173	14	48	1	11	8
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	15	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	85	0	0	68	0	0	20	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	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	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	90	90	90	81	81	81	10	10	10	7
g / C, Green / Cycle	0.75	0.75	0.75	0.67	0.67	0.67	0.08	0.08	0.08	0.06
(v / s)_i Volume / Saturation Flow Rate	0.13	0.21	0.21	0.02	0.26	0.26	0.05	0.05	0.03	0.01
s, saturation flow rate [veh/h]	683	1870	1868	680	1870	1815	1781	1794	1589	1743
c, Capacity [veh/h]	530	1397	1395	457	1260	1223	149	150	133	107
d1, Uniform Delay [s]	5.03	4.89	4.89	10.57	8.58	8.58	53.17	53.17	51.96	53.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, 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]	0.68	0.52	0.52	0.11	0.87	0.90	4.27	4.22	1.64	0.84
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	0.17	0.29	0.29	0.03	0.38	0.38	0.63	0.63	0.36	0.19
d, Delay for Lane Group [s/veh]	5.71	5.41	5.41	10.68	9.46	9.48	57.44	57.38	53.60	54.34
Lane Group LOS	A	A	A	B	A	A	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.62	3.02	3.01	0.15	5.45	5.30	2.90	2.91	1.43	0.60
50th-Percentile Queue Length [ft/ln]	15.50	75.47	75.37	3.69	136.22	132.44	72.48	72.81	35.75	14.99
95th-Percentile Queue Length [veh/ln]	1.12	5.43	5.43	0.27	9.28	9.07	5.22	5.24	2.57	1.08
95th-Percentile Queue Length [ft/ln]	27.90	135.84	135.67	6.64	231.93	226.80	130.46	131.06	64.36	26.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.71	5.41	5.41	10.68	9.47	9.48	57.41	57.38	53.60	54.34	54.34	54.34
Movement LOS	A	A	A	B	A	A	E	E	D	D	D	D
d_A, Approach Delay [s/veh]	5.44			9.49			56.63			54.34		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	13.48											
Intersection LOS	B											
Intersection V/C	0.336											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1333			1050			267			250		
d_b, Bicycle Delay [s]	6.67			13.54			45.07			45.94		
I_b,int, Bicycle LOS Score for Intersection	2.295			2.413			2.022			1.604		
Bicycle LOS	B			B			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Roundabout
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 7.5
Level Of Service: A

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
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	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	3	452	146	201	542	0	3	3	9	151	2	228
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	1.2400	1.2400	1.2400	1.2400	1.0000	1.0000	1.0000	1.0000	1.3000	1.0000	1.3000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	1	3	4	6	0	2	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]	6	560	181	249	672	1	6	7	15	196	4	296
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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	152	49	68	183	0	2	2	4	53	1	80
Total Analysis Volume [veh/h]	7	609	197	271	730	1	7	8	16	213	4	322
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	292			228			1238			635		
Exiting Flow Rate [veh/h]	978			957			12			486		
Demand Flow Rate [veh/h]	6	560	181	249	672	1	6	7	15	196	4	296
Adjusted Demand Flow Rate [veh/h]	7	609	197	271	730	1	7	8	16	213	4	322

Lanes

Override Calculated Critical Headway	No	No	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1420.00	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00091	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	315	315	201	481	542	32	222	329
Capacity of Entry and Bypass Lanes [veh/h]	1089	1089	1089	1154	1154	391	797	797
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1068	1068	1068	1131	1131	383	781	781
X, volume / capacity	0.29	0.29	0.18	0.42	0.47	0.08	0.28	0.41

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	B	A	A
95th-Percentile Queue Length [veh]	1.20	1.20	0.67	2.09	2.57	0.26	1.14	2.03
95th-Percentile Queue Length [ft]	30.03	30.03	16.87	52.20	64.21	6.57	28.41	50.83
Approach Delay [s/veh]	5.90			7.94		10.64	9.02	
Approach LOS	A			A		B	A	
Intersection Delay [s/veh]	7.53							
Intersection LOS	A							

Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.5
Level Of Service: B
Volume to Capacity (v/c): 0.018

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	4	8	252	6	9	233
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	4	0	1	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	12	252	7	12	233
Peak Hour Factor	0.7000	0.7000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	79	2	4	73
Total Analysis Volume [veh/h]	9	17	315	9	15	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.46	9.42	0.00	0.00	7.94	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.12	0.12	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	2.96	2.96	0.00	0.00	0.63	0.63
d_A, Approach Delay [s/veh]	10.47		0.00		0.39	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.60					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	4	3	1	2	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	16	18	1	2	6
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	5	0	1	2
Total Analysis Volume [veh/h]	2	19	21	1	2	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	0.00	8.76	8.44
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.00	0.00	0.66	0.66
d_A, Approach Delay [s/veh]	0.69		0.00		8.51	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.75					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	4	8	1	2	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	16	23	1	2	6
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	5	7	0	1	2
Total Analysis Volume [veh/h]	2	19	27	1	2	7
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.27	0.00	0.00	0.00	8.79	8.47
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	0.08	0.08	0.00	0.00	0.66	0.66
d_A, Approach Delay [s/veh]	0.69		0.00		8.54	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.58					
Intersection LOS	A					

East Street Village TIS

Vistro File: C:\...\pm.vistro

Scenario 6 2045 Total PM - Scenario 1

Report File: C:\...\2045 Total PM - Scenario 1.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.364	15.0	B
2	SH 42 / Lock Street	Roundabout	HCM 7th Edition	WB Right		8.2	A
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.032	13.7	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.3	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.4	A

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: SH 42 / Pine Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 15.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.364

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	107	648	0	4	611	166	170	10	91	3	21	50
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	1.2400	1.0000	1.0000	1.2400	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	3	21	16	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	94	0	0	46	0	0	25
Total Hourly Volume [veh/h]	107	806	0	4	761	93	186	10	45	3	21	25
Peak Hour Factor	0.9300	0.9300	0.9300	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	29	217	0	1	207	25	51	3	12	1	6	7
Total Analysis Volume [veh/h]	115	867	0	4	827	101	202	11	49	3	23	27
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	10	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	76	0	0	56	0	0	29	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	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	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	89	89	89	80	80	80	10	10	10	8
g / C, Green / Cycle	0.74	0.74	0.74	0.66	0.66	0.66	0.08	0.08	0.08	0.07
(v / s)_i Volume / Saturation Flow Rate	0.17	0.23	0.23	0.01	0.25	0.25	0.06	0.06	0.03	0.03
s, saturation flow rate [veh/h]	695	1870	1870	638	1870	1800	1781	1790	1589	1711
c, Capacity [veh/h]	531	1381	1381	420	1242	1195	149	150	133	119
d1, Uniform Delay [s]	5.43	5.34	5.34	11.48	9.05	9.05	53.58	53.58	51.99	53.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, 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]	0.93	0.60	0.60	0.04	0.89	0.92	6.21	6.16	1.70	2.61
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	0.22	0.31	0.31	0.01	0.38	0.38	0.71	0.71	0.37	0.45
d, Delay for Lane Group [s/veh]	6.37	5.93	5.93	11.52	9.94	9.97	59.79	59.74	53.69	56.23
Lane Group LOS	A	A	A	B	A	A	E	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.85	3.51	3.51	0.05	5.55	5.36	3.38	3.40	1.46	1.63
50th-Percentile Queue Length [ft/ln]	21.33	87.80	87.80	1.29	138.86	133.93	84.61	84.89	36.54	40.63
95th-Percentile Queue Length [veh/ln]	1.54	6.32	6.32	0.09	9.42	9.15	6.09	6.11	2.63	2.93
95th-Percentile Queue Length [ft/ln]	38.40	158.04	158.04	2.32	235.49	228.82	152.29	152.80	65.77	73.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.37	5.93	5.93	11.52	9.95	9.97	59.76	59.74	53.69	56.23	56.23	56.23
Movement LOS	A	A	A	B	A	A	E	E	D	E	E	E
d_A, Approach Delay [s/veh]	5.98			9.96			58.63			56.23		
Approach LOS	A			A			E			E		
d_I, Intersection Delay [s/veh]	15.03											
Intersection LOS	B											
Intersection V/C	0.364											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1183			850			417			183		
d_b, Bicycle Delay [s]	10.01			19.84			37.61			49.51		
I_b,int, Bicycle LOS Score for Intersection	2.370			2.406			2.068			1.688		
Bicycle LOS	B			B			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Roundabout
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 8.2
Level Of Service: A

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
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	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	16	570	151	175	506	3	3	2	8	155	4	207
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	1.2400	1.2400	1.2400	1.2400	1.0000	1.0000	1.0000	1.0000	1.3000	1.0000	1.3000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	0	0	0	0	3	2	9	14	0	13	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]	34	707	187	217	627	6	5	11	22	202	17	269
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	9	192	51	59	170	2	1	3	6	55	5	73
Total Analysis Volume [veh/h]	37	768	203	236	682	7	5	12	24	220	18	292
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	258			281			1161			826		
Exiting Flow Rate [veh/h]	945			1086			63			460		
Demand Flow Rate [veh/h]	34	707	187	217	627	6	5	11	22	202	17	269
Adjusted Demand Flow Rate [veh/h]	37	768	203	236	682	7	5	12	24	220	18	292

Lanes

Override Calculated Critical Headway	No	No	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1420.00	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00091	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	411	411	208	444	501	42	243	298
Capacity of Entry and Bypass Lanes [veh/h]	1123	1123	1123	1101	1101	423	670	670
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1101	1101	1101	1079	1079	415	657	657
X, volume / capacity	0.37	0.37	0.18	0.40	0.45	0.10	0.36	0.44

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	B	B	B
95th-Percentile Queue Length [veh]	1.70	1.70	0.67	1.98	2.42	0.33	1.65	2.29
95th-Percentile Queue Length [ft]	42.41	42.41	16.86	49.43	60.51	8.18	41.35	57.22
Approach Delay [s/veh]	6.56			8.00		10.14	11.29	
Approach LOS	A			A		B	B	
Intersection Delay [s/veh]	8.15							
Intersection LOS	A							

Intersection Level Of Service Report

Intersection 3: Pine Street / East Street

Control Type: Two-way stop
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.032

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	6	28	239	14	24	272
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	16	0	6	21	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	44	239	20	45	272
Peak Hour Factor	0.7900	0.7900	0.8300	0.8300	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	14	72	6	13	76
Total Analysis Volume [veh/h]	14	56	288	24	50	302
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	13.68	9.71	0.00	0.00	7.95	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	7.99	7.99	0.00	0.00	2.14	2.14
d_A, Approach Delay [s/veh]	10.50		0.00		1.13	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.54					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	38	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	23	21	3	1	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	57	59	3	1	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	17	17	1	0	1
Total Analysis Volume [veh/h]	7	67	69	4	1	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.37	0.00	0.00	0.00	9.33	8.65
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.29	0.29	0.00	0.00	0.47	0.47
d_A, Approach Delay [s/veh]	0.70		0.00		8.77	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.68					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	36	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	28	22	3	1	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	62	58	3	1	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	18	17	1	0	1
Total Analysis Volume [veh/h]	7	73	68	4	1	5
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.36	0.00	0.00	0.00	9.36	8.65
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.29	0.29	0.00	0.00	0.47	0.47
d_A, Approach Delay [s/veh]	0.64		0.00		8.77	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.66					
Intersection LOS	A					

East Street Village TIS

Vistro File: C:\...\AM.vistro

Scenario 7 2045 Total AM - Scenario 2

Report File: C:\...\2045 Total AM - Scenario 2.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.336	13.5	B
2	SH 42 / Lock Street	Roundabout	HCM 7th Edition	EB Right		7.5	A
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.014	12.4	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.7	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.002	8.8	A

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: SH 42 / Pine Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 13.5
Level Of Service: B
Volume to Capacity (v/c): 0.336

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	82	588	6	11	662	150	155	13	89	1	10	14
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	1.2400	1.0000	1.0000	1.2400	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	1	3	4	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	3	0	0	77	0	0	45	0	0	7
Total Hourly Volume [veh/h]	82	732	3	11	822	76	159	13	44	1	10	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9500	0.9500	0.9500	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	22	199	1	3	216	20	43	4	12	0	3	2
Total Analysis Volume [veh/h]	89	796	3	12	865	80	173	14	48	1	11	8
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	15	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	85	0	0	68	0	0	20	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	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	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	90	90	90	81	81	81	10	10	10	7
g / C, Green / Cycle	0.75	0.75	0.75	0.67	0.67	0.67	0.08	0.08	0.08	0.06
(v / s)_i Volume / Saturation Flow Rate	0.13	0.21	0.21	0.02	0.26	0.26	0.05	0.05	0.03	0.01
s, saturation flow rate [veh/h]	683	1870	1868	680	1870	1815	1781	1794	1589	1743
c, Capacity [veh/h]	530	1397	1395	457	1260	1223	149	150	133	107
d1, Uniform Delay [s]	5.03	4.89	4.89	10.57	8.58	8.58	53.17	53.17	51.96	53.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, 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]	0.68	0.52	0.52	0.11	0.87	0.90	4.27	4.22	1.64	0.84
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	0.17	0.29	0.29	0.03	0.38	0.38	0.63	0.63	0.36	0.19
d, Delay for Lane Group [s/veh]	5.71	5.41	5.41	10.68	9.46	9.48	57.44	57.38	53.60	54.34
Lane Group LOS	A	A	A	B	A	A	E	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.62	3.02	3.01	0.15	5.45	5.30	2.90	2.91	1.43	0.60
50th-Percentile Queue Length [ft/ln]	15.50	75.47	75.37	3.69	136.22	132.44	72.48	72.81	35.75	14.99
95th-Percentile Queue Length [veh/ln]	1.12	5.43	5.43	0.27	9.28	9.07	5.22	5.24	2.57	1.08
95th-Percentile Queue Length [ft/ln]	27.90	135.84	135.67	6.64	231.93	226.80	130.46	131.06	64.36	26.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.71	5.41	5.41	10.68	9.47	9.48	57.41	57.38	53.60	54.34	54.34	54.34
Movement LOS	A	A	A	B	A	A	E	E	D	D	D	D
d_A, Approach Delay [s/veh]	5.44			9.49			56.63			54.34		
Approach LOS	A			A			E			D		
d_I, Intersection Delay [s/veh]	13.48											
Intersection LOS	B											
Intersection V/C	0.336											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1333			1050			267			250		
d_b, Bicycle Delay [s]	6.67			13.54			45.07			45.94		
I_b,int, Bicycle LOS Score for Intersection	2.295			2.413			2.022			1.604		
Bicycle LOS	B			B			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Roundabout
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 7.5
Level Of Service: A

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
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	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	3	452	146	201	542	0	3	3	9	151	2	228
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	1.2400	1.2400	1.2400	1.2400	1.0000	1.0000	1.0000	1.0000	1.3000	1.0000	1.3000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	0	0	1	3	4	5	0	2	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	560	181	249	672	1	6	7	14	196	4	296
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	152	49	68	183	0	2	2	4	53	1	80
Total Analysis Volume [veh/h]	5	609	197	271	730	1	7	8	15	213	4	322
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	292			226			1238			633		
Exiting Flow Rate [veh/h]	977			957			10			486		
Demand Flow Rate [veh/h]	5	560	181	249	672	1	6	7	14	196	4	296
Adjusted Demand Flow Rate [veh/h]	5	609	197	271	730	1	7	8	15	213	4	322

Lanes

Override Calculated Critical Headway	No	No	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1420.00	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00091	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	314	314	201	481	542	31	222	329
Capacity of Entry and Bypass Lanes [veh/h]	1089	1089	1089	1156	1156	391	798	798
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1068	1068	1068	1133	1133	383	783	783
X, volume / capacity	0.29	0.29	0.18	0.42	0.47	0.08	0.28	0.41

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	B	A	A
95th-Percentile Queue Length [veh]	1.20	1.20	0.67	2.08	2.56	0.25	1.13	2.03
95th-Percentile Queue Length [ft]	29.90	29.90	16.87	52.05	64.00	6.34	28.34	50.68
Approach Delay [s/veh]	5.90			7.92		10.60	9.00	
Approach LOS	A			A		B	A	
Intersection Delay [s/veh]	7.51							
Intersection LOS	A							

Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.4
Level Of Service: B
Volume to Capacity (v/c): 0.014

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	4	8	252	6	9	233
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	4	0	0	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	12	252	6	12	233
Peak Hour Factor	0.7000	0.7000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	79	2	4	73
Total Analysis Volume [veh/h]	7	17	315	8	15	291
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	12.43	9.39	0.00	0.00	7.94	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	2.63	2.63	0.00	0.00	0.63	0.63
d_A, Approach Delay [s/veh]	10.28		0.00		0.39	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.56					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	4	3	1	2	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	16	18	1	2	5
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	5	5	0	1	1
Total Analysis Volume [veh/h]	1	19	21	1	2	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.26	0.00	0.00	0.00	8.75	8.44
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.04	0.04	0.00	0.00	0.59	0.59
d_A, Approach Delay [s/veh]	0.36		0.00		8.51	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.51					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	12	15	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	3	7	1	2	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	15	22	1	2	5
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	6	0	1	1
Total Analysis Volume [veh/h]	1	18	26	1	2	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.27	0.00	0.00	0.00	8.77	8.46
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.04	0.04	0.00	0.00	0.59	0.59
d_A, Approach Delay [s/veh]	0.38		0.00		8.54	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.40					
Intersection LOS	A					

East Street Village TIS

Vistro File: C:\...\pm.vistro

Scenario 7 2045 Total PM - Scenario 2

Report File: C:\...\2045 Total PM - Scenario 2.pdf

6/1/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	SH 42 / Pine Street	Signalized	HCM 7th Edition	EB Left	0.364	15.0	B
2	SH 42 / Lock Street	Roundabout	HCM 7th Edition	WB Right		8.1	A
3	Pine Street / East Street	Two-way stop	HCM 7th Edition	NB Left	0.032	13.7	B
4	East Street / North Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.3	A
5	East Street / South Access	Two-way stop	HCM 7th Edition	EB Left	0.001	9.3	A

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: SH 42 / Pine Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 15.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.364

Intersection Setup

Name	SH 42			SH 42			Pine Street			Empire Road		
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	0	0	0	0	0	0
Entry Pocket Length [ft]	300.00	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		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	SH 42			SH 42			Pine Street			Empire Road		
Base Volume Input [veh/h]	107	648	0	4	611	166	170	10	91	3	21	50
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	1.2400	1.0000	1.0000	1.2400	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	2	21	15	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	94	0	0	46	0	0	25
Total Hourly Volume [veh/h]	107	806	0	4	760	93	185	10	45	3	21	25
Peak Hour Factor	0.9300	0.9300	0.9300	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	29	217	0	1	207	25	50	3	12	1	6	7
Total Analysis Volume [veh/h]	115	867	0	4	826	101	201	11	49	3	23	27
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	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	1	6	0	0	2	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	35	0	0	35	0	0	10	0	0	10	0
Maximum Green [s]	12	35	0	0	35	0	0	30	0	0	30	0
Amber [s]	3.0	4.0	0.0	0.0	4.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	20	76	0	0	56	0	0	29	0	0	15	0
Vehicle Extension [s]	3.0	6.0	0.0	0.0	6.0	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	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	0.0	3.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	No	Yes			Yes			No			No	
Maximum Recall	No	No			No			No			No	
Pedestrian Recall	No	No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	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	R	C
C, Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	89	89	89	80	80	80	10	10	10	8
g / C, Green / Cycle	0.74	0.74	0.74	0.66	0.66	0.66	0.08	0.08	0.08	0.07
(v / s)_i Volume / Saturation Flow Rate	0.17	0.23	0.23	0.01	0.25	0.25	0.06	0.06	0.03	0.03
s, saturation flow rate [veh/h]	695	1870	1870	638	1870	1799	1781	1790	1589	1711
c, Capacity [veh/h]	531	1381	1381	420	1242	1195	149	150	133	119
d1, Uniform Delay [s]	5.43	5.34	5.34	11.48	9.05	9.05	53.57	53.56	51.99	53.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11
l, 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]	0.93	0.60	0.60	0.04	0.89	0.92	6.11	6.06	1.70	2.61
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	0.22	0.31	0.31	0.01	0.38	0.38	0.71	0.71	0.37	0.45
d, Delay for Lane Group [s/veh]	6.36	5.93	5.93	11.52	9.93	9.97	59.68	59.63	53.69	56.23
Lane Group LOS	A	A	A	B	A	A	E	E	D	E
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.85	3.51	3.51	0.05	5.55	5.35	3.36	3.38	1.46	1.63
50th-Percentile Queue Length [ft/ln]	21.33	87.80	87.80	1.29	138.66	133.73	84.12	84.40	36.54	40.63
95th-Percentile Queue Length [veh/ln]	1.54	6.32	6.32	0.09	9.41	9.14	6.06	6.08	2.63	2.93
95th-Percentile Queue Length [ft/ln]	38.39	158.04	158.04	2.32	235.22	228.56	151.41	151.92	65.77	73.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.36	5.93	5.93	11.52	9.95	9.97	59.66	59.63	53.69	56.23	56.23	56.23
Movement LOS	A	A	A	B	A	A	E	E	D	E	E	E
d_A, Approach Delay [s/veh]	5.98			9.96			58.53			56.23		
Approach LOS	A			A			E			E		
d_I, Intersection Delay [s/veh]	15.00											
Intersection LOS	B											
Intersection V/C	0.364											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1183			850			417			183		
d_b, Bicycle Delay [s]	10.01			19.84			37.61			49.51		
I_b,int, Bicycle LOS Score for Intersection	2.370			2.405			2.066			1.688		
Bicycle LOS	B			B			B			A		

Sequence

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



Intersection Level Of Service Report
Intersection 2: SH 42 / Lock Street

Control Type: Roundabout
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 8.1
Level Of Service: A

Intersection Setup

Name	96th Street			SH 42			Lock Street			SH 42		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	400.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	600.00
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	96th Street			SH 42			Lock Street			SH 42		
Base Volume Input [veh/h]	16	570	151	175	506	3	3	2	8	155	4	207
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	1.2400	1.2400	1.2400	1.2400	1.0000	1.0000	1.0000	1.0000	1.3000	1.0000	1.3000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	0	0	0	0	2	2	9	13	0	12	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]	33	707	187	217	627	5	5	11	21	202	16	269
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
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]	9	192	51	59	170	1	1	3	6	55	4	73
Total Analysis Volume [veh/h]	36	768	203	236	682	5	5	12	23	220	17	292
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	258			278			1161			825		
Exiting Flow Rate [veh/h]	944			1086			59			460		
Demand Flow Rate [veh/h]	33	707	187	217	627	5	5	11	21	202	16	269
Adjusted Demand Flow Rate [veh/h]	36	768	203	236	682	5	5	12	23	220	17	292

Lanes

Override Calculated Critical Headway	No	No	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
Override Calculated Follow-Up Time	No	No	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1420.00	1420.00	1420.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00091	0.00091	0.00091	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	411	411	208	443	499	41	242	298
Capacity of Entry and Bypass Lanes [veh/h]	1123	1123	1123	1103	1103	423	671	671
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1101	1101	1101	1081	1081	415	658	658
X, volume / capacity	0.37	0.37	0.18	0.40	0.45	0.10	0.36	0.44

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	B	B	B
95th-Percentile Queue Length [veh]	1.69	1.69	0.67	1.96	2.40	0.32	1.64	2.29
95th-Percentile Queue Length [ft]	42.33	42.33	16.86	49.11	60.09	7.97	41.04	57.14
Approach Delay [s/veh]	6.56			7.96		10.10	11.26	
Approach LOS	A			A		B	B	
Intersection Delay [s/veh]	8.13							
Intersection LOS	A							

Intersection Level Of Service Report
Intersection 3: Pine Street / East Street

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 13.7
Level Of Service: B
Volume to Capacity (v/c): 0.032

Intersection Setup

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

Volumes

Name	East Street		Pine Street		Pine Street	
Base Volume Input [veh/h]	6	28	239	14	24	272
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	15	0	5	21	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	43	239	19	45	272
Peak Hour Factor	0.7900	0.7900	0.8300	0.8300	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	14	72	6	13	76
Total Analysis Volume [veh/h]	14	54	288	23	50	302
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.06	0.00	0.00	0.04	0.00
d_M, Delay for Movement [s/veh]	13.66	9.69	0.00	0.00	7.95	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	7.78	7.78	0.00	0.00	2.14	2.14
d_A, Approach Delay [s/veh]	10.51		0.00		1.13	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.52					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: East Street / North Access

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	38	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	23	20	2	1	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	57	58	2	1	3
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	17	17	1	0	1
Total Analysis Volume [veh/h]	6	67	68	2	1	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.36	0.00	0.00	0.00	9.30	8.64
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.25	0.25	0.00	0.00	0.39	0.39
d_A, Approach Delay [s/veh]	0.60		0.00		8.77	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.59					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 5: East Street / South Access

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

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

Volumes

Name	East Street		East Street		Site Access	
Base Volume Input [veh/h]	0	34	36	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	27	21	2	1	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	61	57	2	1	3
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	18	17	1	0	1
Total Analysis Volume [veh/h]	6	72	67	2	1	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.36	0.00	0.00	0.00	9.32	8.64
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.25	0.25	0.00	0.00	0.39	0.39
d_A, Approach Delay [s/veh]	0.57		0.00		8.77	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.58					
Intersection LOS	A					