Sustainable Traffic Solutions
Joseph L. Henderson PE, PTOE
Traffic Engineer / Principal

June 25, 2024

Emily Hill
Director
Haven School
5484 Burgess Road
Colorado Springs, CO 80908

RE: Responses to Comments on the Traffic Impact Study for the Haven School

Dear Emily,

El Paso County provided comments on the traffic impact study for this project that was dated August 25, 2023. Sustainable Traffic Solutions has responded to the comments as noted below.

Comments received from El Paso County on October 15, 2023

Comment 1 Add standard TIS certification statement

Response This statement is included in the updated report on the page that follows the cover.

Comment 2 Add PCD File # AL2322

Response This information was added to the cover.

Comment 3 Address road impact fee

Response Refer to Section 8.0 of the report.

Comment 4 The Letter of intent indicates a total of 115 students. Revise as necessary so that they are consistent with each other.

Response The developer provided the following information and the report has been updated to include this information.

The number of students listed in the traffic study is correct and the inconsistency is in another document.

- 40 – K-6 each Monday-Thursday
- 70 – 7-12 students each Tuesday and Thursday
- Total is 110
- Maximum student growth possibility is an additional 10 students in 7-10 for a total of 120 at max capacity.

Refer to the discussion in Section 1.0 and the trip generation estimate in Table 3.

Comment 5 This intersection is a 3-leg intersection. What is considered a 4th leg in this report is a private drive that provides access to two lots. Please revise.

Response This comment was addressed.

Comment 6 Rural minor arterial cross section is 2 lanes. Urban minor arterial is 4 lanes. See ECM table 2-4 which indicates a 10000 ADT capacity for rural minor arterials. revise analysis accordingly.

Response The comment was addressed. Refer to Section 6.0.

Comment 7 Please clarify whether additional students are anticipated to be added or will it be limited to the 115 students. Include any anticipated growth of the school and include in your analysis.

Response Based on information provided by the Haven School, the maximum number of students will be 120. Refer to Section 1.0.

Comment 8 The letter of intent does not indicate that there are classes on Friday. Revise accordingly.

Response The reference to Friday was removed from the report.

Comment 9 Please state in the text what the ADT and peak hour traffic levels are at the access currently, at full development and long term. Refer to ECM Appendix B.8.

Response Table 1 contains a summary of the daily volumes for the project. Tables containing daily volumes were added to Sections 3.0, 5.0, and 6.0.

Comment 10 Please clarify why it was assumed that the driveway access to the school would be signalized by 2045. Is the school planning to expand by then that its traffic would trigger a signal? Please address. Also, table 2 indicates this as stop controlled.

Response The school access won't be signalized. The text now references a future signal at Burgess Road / Milam Road.

Comment 11 Please correct and/or clarify as there is no Haven Rd only an unnamed private drive access from Burgess.

Response The comment has been addressed.

Comment 12 Please state in the text whether or not a right turn decel lane or acceleration lane is required at the access. Additionally, please analyze and state whether any turn lanes are required or need to be modified at Burgess/Milam and Burgess/Black Forest due to this development's traffic impacts.

Response Table 4 was updated to include a review of the auxiliary lanes at Burgess Road / Milam Road. It wasn't necessary to review the need for auxiliary lanes at

Burgess Road / Black Forest Road because the intersection has a full complement of auxiliary lanes.

Comment 13 Please state in the text what the ECM sight distance criteria are and state whether they are met.

Response The change was made.

Comment 14 Design Vehicle Selection per ECM Table 2-36 shall be single unit truck for a school bus type route. For a school entity a school bus can be expected. Update sight distance and submit a deviation if not met.

Response The entering sight distance was only verified for the passenger vehicle because buses and trucks are not expected to use the access based on information provided by the Haven School. Considering the vertical geometry, there isn't enough sight distance to accommodate a school bus.

Comment 15 Ensure stopping distance is also met for vehicles heading westbound and account for down grade correction factor per ECM. Stopping distance shall be for single unit truck not just passenger vehicle.

Response Section 11.0 was added to the report to address this comment.

Comment 16 Although it is stated that the Tuesday/Thursday volumes are the largest, analysis for Monday/Wednesday was not provided. Please indicate whether any improvements are triggered due to traffic on those days.

Response Refer to Section 9.0 and Table 5.

Comment 17 Improvements would still be required as conditions have been met and there is still a volume of traffic on the Monday and Wednesday.

Response The comment is noted.

Comment 18 Please state whether or not any improvements affected by the project are reimbursable under the current MTCP-State whether the MTCP or other approved corridor study calls for the construction of improvements in the immediate area- State what the applicable Road impact fees are. Please refer to ECM B.8 traffic report standards.

Response Refer to Section 9.2.

Comment 19 a total of 115 students is identified in the letter of intent. Revise your analysis accordingly and account for anticipated increases in student attendance. Also, comments have been provided in the letter of intent to identify when elementary/middle/high school students attend school as it impacts the trip generation. Please coordinate so that they are consistent with each other.

Response The developer provided the following information and the report has been updated to include this information.

The number of students listed in the traffic study is correct and the inconsistency is in another document.

- 40 – K-6 each Monday-Thursday
- 70 – 7-12 students each Tuesday and Thursday
- Total is 110
- Maximum student growth possibility is an additional 10 students in 7-10 for a total of 120 at max capacity.

Refer to the discussion in Section 1.0 and the trip generation estimate in Table 3.

Comment 20 Use 60mph design speed for the turn lane length per minor arterial classification design speeds identified in ECM table 2-4

Response The comment was addressed. Refer to Tables 4 and 5.

Comment 21 Please indicate if this is sufficient queueing/ stacking for vehicles to not impact Burgess Road.

Response Refer to Section 12.0.

Comment 22 From GIS aerials there is no existing aux. left turn lane at the access. Revise accordingly.

Response The correct figure has been inserted into the updated study.

Comment 23 this is a 3-leg intersection. revise accordingly

Response The intersection of Burgess Road / Milam Road does have four legs even though the west leg is a low volume private driveway. To satisfy the comment, the low volume private driveway was excluded from the updated analysis.

Comments Received from El Paso County on December 13, 2023

For the Burgess and Milam intersection improvements and the update to the TIS.

Comment 24 The addition of a southbound Milam left turn to Burgess will need to be included for an escrow cost share based on the added traffic.

Response The estimated for the cost for the improvement is discussed in Section 9.1.

Comment 25 The TIS will need to include the turn lane lengths, widths, and taper.

Response Refer to Tables 4 and 5.

Comment 26 The engineer estimate for the SB turn lane will need to be included and correlate with the calculated escrow amount.

Response The estimated for the cost for the improvement is discussed in Section 9.1.

Comment 27 The westbound Burgess at Milam will need to be included for escrow cost share for right and left turn lanes based on added traffic.

Response The estimated for the cost for the improvement is discussed in Section 9.1.

Comment 28 The TIS will need to include the turn lane lengths, widths, and taper for these two turn lanes.

Response Refer to Tables 4 and 5.

Comment 29 The engineer estimate for the two turns lane will need to be included and correlate with the calculated escrow amount.

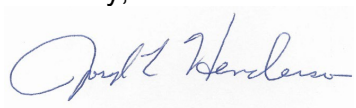
Response The estimated for the cost for the improvement is discussed in Section 9.1.

Comment 30 The TIS will need to include a statement pertaining to the signal warrant at Milam and Burgess and if its needed or not based on the 4 and 8hr warrant analysis

Response Refer to Section 7.0.

Please contact me with questions.

Sincerely,



Joseph L. Henderson, PE, PTOE
Project Manager / Principal

Haven School

Traffic Impact Study

PCD File # AL2322

El Paso County, Colorado

June 25, 2024

Prepared By:

Sustainable Traffic Solutions, Inc.
http://www.sustainabletrafficsolutions.com/

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Engineer's Certification Page

Traffic Engineer's Statement

The attached traffic report and supporting information were prepared under my responsible charge and they comport with the standard of care. So far as is consistent with the standard of care, said report was prepared in general conformance with the criteria established by the County for traffic reports.

Developer's Statement

I, the Developer, have read and will comply with all commitments made on my behalf within this report.

Emily Hill
Director
Haven School
5484 Burgess Road
Colorado Springs, CO 80908

Emily Hill
Director
Haven School

12/4/23
Date

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EL PASO COUNTY PLANNING AND COMMUNITY DEVELOPMENT DEPARTMENT

TRAFFIC IMPACT STUDY

Revised: January 2022

Traffic Impact Study Report

The purpose of the traffic impact study is to provide detailed recommendations for the preparation of plans for all necessary transportation facility improvements and adequate access to those facilities for proposed development. The facilities include roadways and their structures, as well as extrinsic structures that support the use of the transportation facility. El Paso County standards and technical criteria shall be used to plan, design, construct, choose materials, locate, repair, maintain, reconstruct, and use roadways and other transportation facilities and the associated extrinsic structures. The Traffic Impact Study shall be prepared by a qualified professional engineer and shall be tailored to the stage of development application and the stage of subdivision-related construction.

The report preparer shall verify type and level of TIS/memorandum required in accordance with ECM Section B.1.

		Applicant	PCD
	Please confirm each item below has been included by placing a check mark in the "Applicant" column. See right for an example. The "PCD" column is for office use only.	✓	Office use only
1	Signature Page (ECM B.8)	X	
2	Table of contents, pages numbered	X	
3	Existing/background conditions narrative to include at a minimum:	X	
	Vicinity map showing the subdivision in relation to section lines and existing or proposed arterial or collector roadways.	X	
	Label all roads discussed in the report	X	
	Graphically indicate all intersections evaluated	X	
	Accurately depict the site location and boundaries	X	
	Study Area – Provide calculations showing that the study area includes all affected intersections, address ECM B.2.3 requirements	X	
	Background traffic	X	
	Clearly explain how background traffic was derived	X	
	List other traffic studies in the area of study within the past five years identified by County staff or that the applicant is aware of. State whether the current study is consistent with those studies and explain any discrepancies.	N/A	
	Excerpts from studies of those developments are included in the appendices.	N/A	
	Sketch diagrams of all existing intersections evaluated in the study showing widths of all approach lanes and lengths of auxiliary lanes and tapers.	X	
	Description, classification, and link ADT of major roads in the study area (collector classification and higher).	X	
	Specify MTCP functional and corridor preservation classifications	X	
	Description of intersections evaluated in the study including existing controls	X	
	Do existing road segments meet cross section standards for designated classifications?	X	
	Traffic Count Data	X	
	24 Hour Counts for ADT for major road segments	X	
	Peak-hour counts for all intersections evaluated in the study	X	
4	Proposed development and trip generation narrative shall include at a minimum:	X	
	Site Plan	X	
	Land Use – Type and extent correspond with associated application documents	X	

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TRAFFIC IMPACT STUDY

Revised: January 2022

	Discussion of applicable ITE land use type(s) (including ITE code(s)) and comparison between the proposed use(s) and the codified use	X	
	Total traffic generated by the proposed development using ITE trip generation; provide footnotes on the methods used (equation/chart/interpolation)	X	
	Adjustments to trip generation including pass-by trips and internal trip capture	N/A	
	Trip distribution assumptions and map	X	
	Specify expected year of completion (build-out) and intermediate years if phasing is proposed	X	
	On-site road classification figure including ADT numbers	N/A	
	On-site Traffic control recommendations (particularly stop controls at intersections)	N/A	
	Evaluation of intersection spacing along all interior roads, and new intersections on adjacent or off-site roads, and confirmation that the spacing meet criteria	N/A	
	List ECM criteria for stacking, storage, and taper for every affected auxiliary lane and access and state whether this access can be met. If it cannot be met, state the required modifications so that it can be met.	X	
	State what the sight distance is for every affected access and whether it can be met. If it cannot be met, state the required modifications so that it can be met.	X	
5	Evaluation and Mitigation of Impacts shall include a minimum:	X	
	Short-term, intermediate and long-term analysis horizon years are clearly stated and years are labeled on the corresponding figures.	X	
	Capacity analysis of major road segments. Results presented in a figure or table showing short~term and long~term ADTs against maximum allowable ADT	X	
	Capacity analysis of all existing intersections evaluated in the study and all proposed access locations onto existing public roads	X	
	For capacity analysis of signalized intersections, provide discussion of the following parameters:	X	
	Cycle length	X	
	Provisions for left turns ~ permissive/protected; lead/lag	X	
	Free right turns	X	
	Identification of any sub-standard LOS situations and discussion of recommendations for mitigation.	X	
	Evaluation of safety-based warrants for turn lanes at unsignalized intersections (speed change lanes).	X	
	Weaving analysis if applicable	N/A	
	Summary table of necessary turn lane improvements including design speed, taper rates and taper lengths, storage lengths, deceleration or acceleration lengths, and the resulting full-width lane lengths.	X	
	Signal warrant analysis; estimated projected need if not currently warranted	N/A	
	Graphical depiction of improvements required to meet level-of-service standards	N/A	
	Trigger points for the construction of all required future improvements including but not limited to turn lanes, signals, widenings, and openings or closings of accesses. ("Trigger points" are the conditions that, when met, will call for the construction of said improvements.)	X	
	Summary of accident history within the study area.	N/A	
	Accident history data presented in tabular form by location and including annual vehicle use volume and accident rate calculations	N/A	
	Discussion of pedestrian/bicyclist needs and provisions.	N/A	

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	School and pedestrian routing plans	N/A	
	School traffic analysis per North Carolina DOT MSTA https://connect.ncdot.gov/municipalities/School/pages/default.aspx	N/A	
	Master-planned trails	N/A	
	Project Traffic modeling and figures	X	
	Short Term Background Plus Project Traffic lanes, intersection control and LOS modeling and figures for all affected intersection movements	X	
	Long Term Background Plus Project Traffic lanes, intersection control and LOS modeling and figures for all affected intersection movements	X	
	Assess and summarize all project impacts (roadways, intersections, pedestrians, bicycles, etc.)	X	
	Describe proposed mitigation measures	X	
	Specfically address all deviations requested (separate form(s) required)	X	
	Address any special studies that apply (access management plan, neighborhood impact evaluation, sight distance evaluation, traffic speed study, etc.)	N/A	
6	Recommendations and Report Conclusions shall include a minimum of:	X	
	Narrative recommendations and conclusions	X	
	For final plats, state definitively what improvements the developer will be constructing with the project.	N/A	
	State whether or not any improvements affected by the project are reimbursable under the current Major Transportation Corridors Plan (MTCP) and Road Fee program.	N/A	
	State whether the MTCP or other approved corridor study calls for the construction of improvements in the immediate area.	N/A	
	State what the current applicable Road Impact Fees are and what option the developer will be selecting for payment. If the site is in a special district, so state and summarize the applicable fees.	N/A	
	Provide a description of how transportation improvements will be financed (responsibility) and a Recommended Improvements Summary Table per ECM section B.6.1.D.	N/A	
	List of References.	X	
7	A mimimum of the following appendices:	X	
	Complete modeling for all existing and proposed development horizons	X	
	Modeled signal cycle timing matches narrative and is within DPW allowances and signal coordination requirements, if applicable	N/A	
	Modeled lanes match improvements table and CDs	X	

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Haven School

Traffic Impact Study

1.0 Introduction

The Haven School is a tuition-free public program serving kindergarten through 12th grade homeschool students in the Colorado Springs area. It is located at 5490 Burgess Road in El Paso County. The property has two buildings that are used for the school and a single family dwelling unit that is not occupied. A vicinity map is contained in Figure 1 that shows the location of the site on the north side of Burgess Road. Figure 2 shows and aerial photo that was obtained from the El Paso County website. The buildings and their proximity to Burgess Road can be seen in the figure. Information about the Haven School can be found here.

Haven School provides science, arts, and nature courses in the classical tradition. The number of students at the school and the days that they attend are as follows.

- 40 kindergarten through 6th grade students come to the school one day per week on Monday through Thursday
- 70 7th through 12th grade students come to the school twice each week on Tuesdays and Thursdays.

The school has a capacity of 120 students that would include an additional 10 students in 7th through 12th grades.

Haven School is open a total of thirty weeks during the school year. The school day begins after the morning peak hour and ends before the evening peak hour. The drop off times are 8:45 a.m. and 9:00 a.m., and the pick-up times are 3:00 p.m. and 3:15 p.m. The times are staggered to separate the elementary and secondary grades.

A meeting was held with the County staff on June 27, 2023 to discuss the assumptions that were used in the traffic study. Meeting notes and the traffic study assumptions discussed at the meeting are contained in Appendix A.

This study has been prepared in conformance with the El Paso County criteria for traffic impact studies[1].

County report review is provided only for general conformance with County standards and design criteria. The County is not responsible for the accuracy and adequacy of the data, analysis, or conclusions. The County through the approval of this document assumes no responsibility for completeness and/or accuracy of this document.

[1] El Paso County Engineering Criteria Manual, Appendix B. May 16, 2021.

2.0 Project Description

2.1 Study Area

The study area includes the site access on Burgess Road plus the intersections of Burgess Road / Milam Road and Burgess Road / Black Forest Road. Burgess Road / Milam Road is a three-legged intersection with side street stop control. There is a private access that is part of this intersection. Burgess Road / Black Forest Road is a four-legged, signalized intersection. Burgess Road, Milam Road, and Black Forest Road are two-lane minor arterial roadways. The speed limit on Burges Road near the site is 45 MPH. Refer to Figure 3 for the laneage and traffic control at the study area intersections.

2.2 Study Assumptions

The following assumptions were utilized for this study.

Short-Term Study Horizon. The capacity of the school is expected to be reached by the Year 2025. Based on El Paso County requirements, the short-term horizon is one year following full occupancy of the development, therefore, the short-term horizon is Year 2026.

Long-Term Study Horizon. Year 2045 will be the long-term horizon because it is 20 years following the year when the school is expected to reach capacity.

Growth in Background Traffic. The following annual growth rates were calculated based on Year 2045 projected volumes that were provided by the Pikes Peak Area Council of Governments (PPACG) (see Appendix B).

- Burgess Road between Milam Road and Black Forest Road – 5%
- Milam Road north of Burgess Road – 4%
- Milam Road south of Burgess Road – 2%
- Black Forest Road north of Burgess Road – 3%
- Black Forest Road south of Burgess Road – 5%
- Burgess Road east of Black Forest Road – 2%

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

Future Roadway Improvements. No capacity improvements are planned on Burgess Road, Milam Road, or Black Forest Road.

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. A PHF of 0.5 was assumed for the turning movements at the site access. 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.

Truck Percentage. Vehicle classification data were collected on Burgess Road near the site for 24-hours and the data are summarized in the following table. It shows

that an average of 7% trucks passed by the site. Therefore, 7% trucks were assumed for all movements except for the site access. Refer to Section 3.0 for a discussion of the traffic data collection. A truck percentage of 2% was assumed for all movements associated with the site access.

Direction	Traffic		% Trucks
	Total	Trucks	
Eastbound	2,404	133	6%
Westbound	2,287	204	9%
Total	4,691	337	7%

3.0 Traffic Count Data

Traffic count data were collected for the project on Wednesday July 19, 2023 by All Traffic Data. The peak hour counts were collected during the drop off and pick up times for the school. The Year 2023 peak hour volumes are summarized in Figures 4 and 5. Existing daily volumes are summarized in the following table and in Table 1. The traffic count data are contained in Appendix C.

Year 2023 Daily Volumes

Link	Year 2023 Existing Traffic
Burgess Road east of High Meadows Drive	4,691
Burgess Road west of Black Forest Road	4,610
Milam Road north of Burgess Road	4,660
Milam Road south of Burgess Road	7,920
Black Forest Road north of Burgess Road	4,660
Black Forest Road south of Burgess Road	4,850
Burgess Road east of Black Forest Road	4,990

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 Manual[2]. LOS is a measure used

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

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 rural areas, LOS C is considered the minimum intersection operation.

The following table summarizes the analysis of the Year 2023 conditions. It shows that both 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	Total	
		Morning	After School
1 - Burgess Road / Milam Road	Side-Street Stop	C	B
2 - Burgess Road / Black Forest Road	Signalized	A	A

4.0 Site Generated Traffic

4.1 Trip Generation

In order to determine the traffic impacts associated with the Haven School, the trip generation was estimated using rates that are contained in Trip Generation, 11th Edition[3]. The trip generation estimate is contained in Table 3.

The peak hour trips generated by the Haven School are assumed to be distributed as shown in Figure 6. The trip distribution assumption is based on the proximity of the school to residences in the area. Refer to Figures 7 and 8 for the peak hour trip assignment. The assignments are based on the trip generation for Tuesday and Thursday because the volumes are expected to be higher than on Monday and Wednesday. Considering that the school is open 30 weeks per year, these volumes would only be observed on 60 days per year.

5.0 2026 Traffic Conditions

Haven School is expected to be at capacity by the Year 2025, and the short-term horizon is Year 2026 based on the County requirements. Background traffic volumes were developed by inflating the Year 2023 volumes by the growth rates discussed in Section 2.2. The background traffic volume scenarios are contained in Figures 9 and 10. Total traffic volume scenarios were developed by adding the trip assignment to the background traffic volume scenarios (see Figures 11 and 12).

The results of the analysis are summarized in the following table. It shows that all of the intersections are expected to be operating at LOS C, or better. Figure 13

[3] Trip Generation, 11th Edition. Institute of Transportation Engineers. September 2021.

contains the laneage and traffic control assumed in the analysis of the total traffic volume scenarios.

Year 2026 Traffic Conditions

Intersection	Control	Background		Total	
		Morning	After School	Morning	After School
1 - Burgess Road / Milam Road	Side-Street Stop	C	B	C	B
2 - Burgess Road / Black Forest Road	Signalized	A	A	A	A
3 - Burgess Road / Haven School Access	Side-Street Stop	---		B	B

The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix D.

The Year 2026 daily volumes are summarized in the following table and in Table 1.

Year 2026 Daily Volumes

Link	Year 2026 Background Traffic	Year 2026 Total Traffic
Burgess Road east of High Meadows Drive	5,470	5,610
Burgess Road west of Black Forest Road	5,380	5,440
Milam Road north of Burgess Road	5,200	5,220
Milam Road south of Burgess Road	8,420	8,540
Black Forest Road north of Burgess Road	5,090	5,090
Black Forest Road south of Burgess Road	5,670	5,710
Burgess Road east of Black Forest Road	5,310	5,330

The Year 2026 projected daily volumes were compared against Table 2-4 of the El Paso County Engineering Criteria Manual (ECM). All of the roadways are two-lane rural minor arterials with a threshold of 10,000 ADT. A review of the table shows that the projected daily volumes are all below 10,000 ADT, therefore, the two-lane section is adequate.

6.0 Year 2045 Traffic Conditions

The Year 2045 background and total traffic volume scenarios were determined as discussed in Section 5.0. The background traffic volume scenarios are contained in Figures 14 and 15, and the total traffic volume scenarios are contained in Figures 16 and 17.

The results of the analysis are summarized in the following table. Figure 18 contains the laneage and traffic control assumed in the analysis of the total traffic volume scenarios. It shows that all of the intersections are expected to operate at LOS C. The intersection of Burgess Road / Milam Road is assumed to be signalized by the Year 2045.

Year 2045 Traffic Conditions

Intersection	Control	Background		Total	
		Morning	After School	Morning	After School
1 - Burgess Road / Milam Road	Signalized	A	A	A	A
2 - Burgess Road / Black Forest Road	Signalized	A	A	A	A
3 - Burgess Road / Haven School Access	Side-Street Stop	---		C	C

The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix D.

The Year 2045 daily volumes are summarized in the following table and in Table 1.

Year 2045 Daily Volumes

Link	Year 2045 Background Traffic	Year 2045 Total Traffic
Burgess Road east of High Meadows Drive	14,430	14,570
Burgess Road west of Black Forest Road	14,250	14,310
Milam Road north of Burgess Road	10,370	10,390
Milam Road south of Burgess Road	12,280	12,400
Black Forest Road north of Burgess Road	8,890	8,890
Black Forest Road south of Burgess Road	15,230	15,270
Burgess Road east of Black Forest Road	7,830	7,850

The Year 2045 projected daily volumes were compared against Table 2-4 of the El Paso County Engineering Criteria Manual (ECM). All of the roadways are two-lane rural minor arterials with a threshold of 10,000 ADT. The traffic volumes on all of the roadways are expected to exceed 10,000 ADT by the Year 2045 which would suggest that the roadways should be widened to four through lanes. The exceptions would be Black Forest Road north of Burgess Road and Burgess Road east of Black Forest Road.

7.0 Traffic Signal Warrant Study

A traffic signal warrant study was performed at Milam Road / Burgess Road based on the requirements contained in the Manual on Uniform Traffic Control Devices[4] (MUTCD) to determine if a traffic signal will be warranted. The following assumptions were used for the analysis.

Speed Limit. The posted speed limit is 45 MPH on Milam Road.

Number of Main-Street Lanes. One lane exists on Milam Road and is expected to be expanded to two lanes by the Year 2045.

Number of Side-Street Lanes. One side-street lane was assumed on the Burgess Road approach.

Main Street Right Turning Traffic. None of the northbound right turn volumes were included in the warrant because a right turn bypass island is assumed for this movement and the traffic will not pass through the intersection.

Side-Street Right Turning Traffic. 50% of the right turning traffic was included in the warrant analysis because some vehicles will be able to turn into gaps in traffic without the aid of a traffic signal.

To evaluate the signal warrants, 12 hours of turning movement counts were collected at from 6:00 a.m. to 6:00 p.m. on Tuesday April 16, 2024 by Sustainable Traffic Solutions. These data are contained in Appendix C. A review of the volumes shows that a traffic signal is not currently warranted, but is expected to be warranted by the four hour warrant by the Year 2045. It is estimated that the traffic signal will be warranted by the Year 2035. The signal warrant study analysis is contained in Appendix E.

8.0 Road Impact Fee

The road impact fee is based on the size of the buildings. The total square footage of the school buildings is 19,723 ft^2 including 6,370 ft^2 for the main school building and 13,353 ft^2 for the barn. The fee for a public/institutional land use is $3,372.00 / 1,000 ft^2, therefore, the road impact fee is $66,505.96 ((19,723/1000) x $3,372 = $66,505.96).

9.0 Auxiliary Lane Review at the Study Area Intersections

The need for auxiliary lanes was reviewed at the study area intersections based on the requirements contained in Section 2.3.7D of the ECM. Burgess Road, Milam Road, and Black Forest Road are all classified as minor arterials by El Paso County. The review is contained in Table 4 for the Tuesday and Thursday volumes, and the review for the Monday and Wednesday volumes is contained in Table 5. The following is a summary of the analysis.

[4] Manual on Uniform Traffic Control Devices, 11th Edition. Federal Highway Administration. December 2023.

Burgess Road / Haven School Access. An eastbound left turn deceleration lane will be warranted during the morning peak hour on Tuesday and Thursday. This lane will not be warranted on Monday and Wednesday.

Burgess Road / Milam Road. The following lanes will be warranted all four days that the school will be open.

- Southbound left turn decel lane
- Northbound right turn decel lane
- Northbound to eastbound right turn accel lane
- Westbound left turn decel lane

Burgess Road / Black Forest Road. All of the possible auxiliary lanes exist at this intersection.

9.1 Cost Estimates for Improvements

Conceptual designs were prepared for both of the intersections to develop cost estimates. Figure 19 contains the conceptual design for the school access on Burgess Road and the conceptual design for Burgess Road / Milam Road is contained in Figures 20 and 21. The auxiliary lane lengths are included in Tables 4 and 5.

Cost estimates were prepared for the improvements and are summarized in the following table. Detailed cost estimates are contained in Appendix F.

Intersection	Movement	Cost
Burgess Road / School Access	EBLT Decel Lane	$329,900
Burgess Road / Milam Road	North Leg (SBLT Decel Lane)	$231,100
	South Leg (NBRT Decel Lane)	$199,300
	East Leg	$369,000

9.2 Reimbursable Improvements

Table 4 from the 2016 Major Transportation Corridors Plan Update[5] was reviewed to determine if any of the identified improvements would be reimbursable. The plan doesn't include any projects on Burgess Road, however, a rural county road upgrade is planned for Milam Road between Shoup Road and Old Ranch Road (project U14). Therefore, the southbound left turn and northbound right turn decel lanes at Burgess Road / Milam Road would be reimbursable improvements.

[5] 2016 Major Transportation Corridors Plan Update. El Paso County. Adopted December 6, 2016.

10.0 Entering Sight Distance

The intersection sight distance was estimated at the site access for the Haven School using methodology that is contained in Table 2-35 of the ECM. The ECM requires a minimum of 450' of sight distance for a passenger vehicle to turn from the school access onto Burgess Road. As shown in Figure 22, adequate entering sight distance exists at the site access. The entering sight distance was only verified for passenger vehicles because buses and trucks are not expected to use the access based on information provided by the Haven School. Considering the vertical geometry east of the site access, there isn't enough sight distance to accommodate a school bus, single unit truck, or multi-unit truck.

11.0 Sight Distance Along the Roadway

The sight distance along the roadway was evaluated as required by Section 2.4.1D of the ECM. Table 2-33 requires a minimum of 325' of sight distance along the roadway for a 45 MPH speed limit and would accommodate vehicle speeds of 55 MPH. As shown in Figure 22, there is a minimum of 450' of sight distance east and west of the school access, therefore, the criteria were satisfied.

12.0 School Drop-Off and Pick-Up Procedures

The length of the drop-off and pick-up queues were estimated using the Poisson distribution. Based on information provided by the Haven School, it typically takes a parent about three minutes to enter the property, drop-off or pick-up, and then leave the property. If the parent travels at approximately 20 MPH on the Haven School property (1,050' between the entrance and the drop-off or pick-up location), that would allow about 90 seconds for the student to enter or exit the vehicle. The following information was provided by the Haven School.

- The pick-up and drop-off are staggered for the different grades, so not all parents arrive at the same time.
- 10% of the 7th through 12th grade students drive themselves to school.

The average queue length is estimated to be approximately nine vehicles long (approximately 153') based on the following assumptions.

- The drop-off / pick-up queue was estimated for the 7th through 12th grade students because that is the largest group of students.
- The vehicle occupancy was assumed to be one student per vehicle.
- The capacity for the 7th through 12th grade students is 80. Assuming that 10% drive to and from school, 72 parents were assumed to drop-off and pick-up students.
- 90 seconds was assumed for a student to enter or exit the vehicle.

Based on very conservative assumptions, the average queue will not impact the traffic on Burgess Road.

Intersection Operation. The existing intersections are currently operating at LOS C, or better. In the Year 2045, all of the intersections are expected to continue to operate at a minimum of LOS C.

Traffic Signal Warrant Study. Warrants contained in the MUTCD for signalization of Milam Road / Burgess Road were reviewed to determine if the intersection will warrant signalization. The intersection is not expected to meet signal warrants in the Year 2026, however, the Year 2045 volumes satisfy the four hour warrant. It is estimated that the intersection will warrant signalization by the Year 2035.

Auxiliary Lane Review at the Site Access on Burgess Road. An eastbound left turn deceleration lane is warranted based on the Tuesday and Thursday peak hour trip generation.

Auxiliary Lane Review at Milam Road / Burgess Road. The following lanes are warranted at the intersection.

- Southbound left turn deceleration lane
- Northbound right turn deceleration lane
- Northbound to eastbound right turn acceleration lane
- Westbound left turn deceleration lane

Entering Sight Distance. There is adequate entering sight distance for passenger vehicles. The entering sight distance was only verified for passenger vehicles because buses and trucks are not expected to use the access based on information provided by the Haven School. Considering the vertical geometry east of the site access, there isn't enough sight distance to accommodate a school bus, single unit truck, or multi-unit truck.

Sight Distance Along the Roadway. The criteria are satisfied for the 45 MPH speed limit and would accommodate vehicle speeds of 55 MPH.

School Drop-Off and Pick-Up Procedures. Parents dropping-off and picking-up students will not impact the traffic on Burgess Road.

Tables

Table 1 – Estimated Daily Volumes for Key Links in the Study Area
Table 2 – Intersection Operational Summary
Table 3 – Trip Generation Estimate
Table 4 – Year 2026 Auxiliary Lane Analysis – Tuesday & Thursday Traffic
Table 5 – Year 2026 Auxiliary Lane Analysis – Monday & Wednesday Traffic

Table 1. Estimated Daily Volumes for Key Links in the Study Area

Link	Year 2023 Existing Traffic [1]	Year 2026 Background Traffic	Haven School	Year 2026 Total Traffic	Year 2045 Background Traffic	Year 2045 Total Traffic
Burgess Road east of High Meadows Drive	4,691	5,470	140	5,610	14,430	14,570
Burgess Road west of Black Forest Road	4,610	5,380	60	5,440	14,250	14,310
Milam Road north of Burgess Road	4,660	5,200	20	5,220	10,370	10,390
Milam Road south of Burgess Road	7,920	8,420	120	8,540	12,280	12,400
Black Forest Road north of Burgess Road	4,660	5,090	0	5,090	8,890	8,890
Black Forest Road south of Burgess Road	4,850	5,670	40	5,710	15,230	15,270
Burgess Road east of Black Forest Road	4,990	5,310	20	5,330	7,830	7,850

Note

1. The Year 2023 volumes highlighted in yellow were collected in the field. The other existing volumes were estimated using the peak hour to daily ratio for the evening peak hour.

Table 2. Intersection Operational Summary

Signalized Intersections [1]	Year 2023 Volumes				Year 2026 Background Volumes				Year 2026 Total Volumes				Year 2045 Background Volumes				Year 2045 Total Volumes			
	Morning		After School		Morning		After School		Morning		After School		Morning		After School		Morning		After School	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 - Burgess Road / Milam Road	---				---				---				2.3	A	2.3	A	2.3	A	2.3	A
2 - Burgess Road / Black Forest Road	6.0	A	5.9	A	6.2	A	6.1	A	6.3	A	6.1	A	7.0	A	8.1	A	7.1	A	8.2	A

Stop-Controlled Intersections [2]	Year 2023 Volumes				Year 2026 Background Volumes				Year 2026 Total Volumes				Year 2045 Background Volumes				Year 2045 Total Volumes			
	Morning		After School		Morning		After School		Morning		After School		Morning		After School		Morning		After School	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 - Burgess Road / Milam Road	15.0	B	12.4	B	17.9	C	13.4	B	19.9	C	14.0	B	---				---			
	WBLT				WBLT		WBLT		WBLT		WBLT									
3 - Burgess Road / Haven School Access	---				---				13.8	B	12.7	B	---				24.7	C	21.7	C
									SBLT		SBLT						SBLT		SBLT	

Notes

1. The level of service for signalized intersections is based on the delay for the entire intersection.

2. The level of service for intersections with side-street stop-control is determined by the movement with the highest delay value.

Table 3. Trip Generation Estimate

Land Use	ITE Code [1]	Size	Unit	Trips											
				Average Weekday				Morning Peak Hour of Generator				After School Peak Hour of Generator			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Monday through Thursday															
Private School (K-8) [2]	530	10	Students	4.11	42	21	21	1.01	10	6	4	0.60	6	3	3
Tuesday & Thursday															
Private School (K-12) [3]	532	80	Students	2.48	198	99	99	0.80	64	40	24	0.53	42	18	25
Total - Tuesday & Thursday	---	---	---	---	240	120	120	---	74	46	28	---	48	21	28

Notes

1. The trip generation rates were obtained from Trip Generation, 11th Edition (Institute of Transportation Engineers, 2021).

2. The school has a capacity of 40 K through 6th grade students. Each K through 6th grade student comes to the Haven School one day per week on Monday through Thursday), so their attendance was assumed to be divided equally between the four possible days that they can choose to attend.

3. The school has a capacity of 80 7th through 12th grade students.

Table 4. Year 2026 Auxiliary Lane Analysis - Tuesday & Thursday Traffic

Burgess Road / Haven School Access

Movement	Threshold	Year 2026 Total Traffic		Lane Length					
		Morning	After School	Speed Limit	Design Speed	Redirect Taper	Approach Taper	Lane Length	Storage
EB Left Turn Decel	25 VPH	33	15	45	60	330	240	290	50
WB Right Turn Decel	50 VPH	14	6	Not Warranted					
SB to WB Right Turn Accel	50 VPH	19	19	Not Warranted					

Burgess Road / Milam Road

Movement	Threshold	Year 2026 Traffic		Lane Length					
		Morning	After School	Speed Limit	Design Speed	Redirect Taper	Approach Taper	Lane Length	Storage
SB Left Turn Decel	25 VPH	40	27	45	60	330	240	290	50
NB Right Turn Decel [2]	50 VPH	115	168			---	240	290	0
NB to EB Right Turn Accel	50 VPH	115	168			---	162	550	0
WB Left Turn Decel	25 VPH	237	139			---	240	290	200
WB Right Turn Decel	50 VPH	35	30	Not Warranted					
WB to NB Right Turn Accel	50 VPH	35	30	Not Warranted					

XX Threshold Exceeded

Notes

1. Based on Figures 2-25 and 2-26 of the ECM, the County standards allow for vehicle deceleration in the bay taper.

2. The geometry of the northbound right turn decel lane does not meet County standards. No storage is assumed because a right turn bypass lane and accel lane are assumed.

Table 5. Year 2026 Auxiliary Lane Analysis - Monday & Wednesday Traffic

Burgess Road / Haven School Access

Movement	Threshold	Year 2026 Total Traffic		Lane Length					
		Morning	After School	Speed Limit	Design Speed	Redirect Taper	Approach Taper	Lane Length	Storage
EB Left Turn Decel	25 VPH	4	2	45	60	330	240	290	50
WB Right Turn Decel	50 VPH	12	1	Not Warranted					
SB to WB Right Turn Accel	50 VPH	3	2	Not Warranted					

Burgess Road / Milam Road

Movement	Threshold	Year 2026 Traffic		Lane Length					
		Morning	After School	Speed Limit	Design Speed	Redirect Taper	Approach Taper	Lane Length	Storage
SB Left Turn Decel	25 VPH	37	24	45	60	330	240	290	50
NB Right Turn Decel [2]	50 VPH	109	154			---	240	290	0
NB to EB Right Turn Accel	50 VPH	109	154			---	162	550	0
WB Left Turn Decel	25 VPH	225	119			---	240	290	200
WB Right Turn Decel	50 VPH	32	26	Not Warranted					
WB to NB Right Turn Accel	50 VPH	32	26	Not Warranted					

XX Threshold Exceeded

Notes

1. Based on Figures 2-25 and 2-26 of the ECM, the County standards allow for vehicle deceleration in the bay taper.

2. The geometry of the northbound right turn decel lane does not meet County standards. No storage is assumed because a right turn bypass lane and accel lane are assumed.

Figures

Figure 1 – Vicinity Map
Figure 2 – Site Layout
Figure 3 – Laneage and Traffic Control – Existing
Figure 4 – Year 2023 Traffic Volumes – Morning Peak Hour
Figure 5 – Year 2023 Traffic Volumes – After School Peak Hour
Figure 6 – Trip Distribution
Figure 7 – Tuesday & Thursday Trip Assignment – Morning Peak Hour
Figure 8 – Tuesday & Thursday Trip Assignment – After School Peak Hour
Figure 9 – Year 2026 Background Traffic Volumes – Morning Peak Hour
Figure 10 – Year 2026 Background Traffic Volumes – After School Peak Hour
Figure 11 – Year 2026 Total Traffic Volumes – Morning Peak Hour
Figure 12 – Year 2026 Total Traffic Volumes – After School Peak Hour
Figure 13 – Laneage and Traffic Control – Year 2026 Traffic Volume Scenarios
Figure 14 – Year 2045 Background Traffic Volumes – Morning Peak Hour
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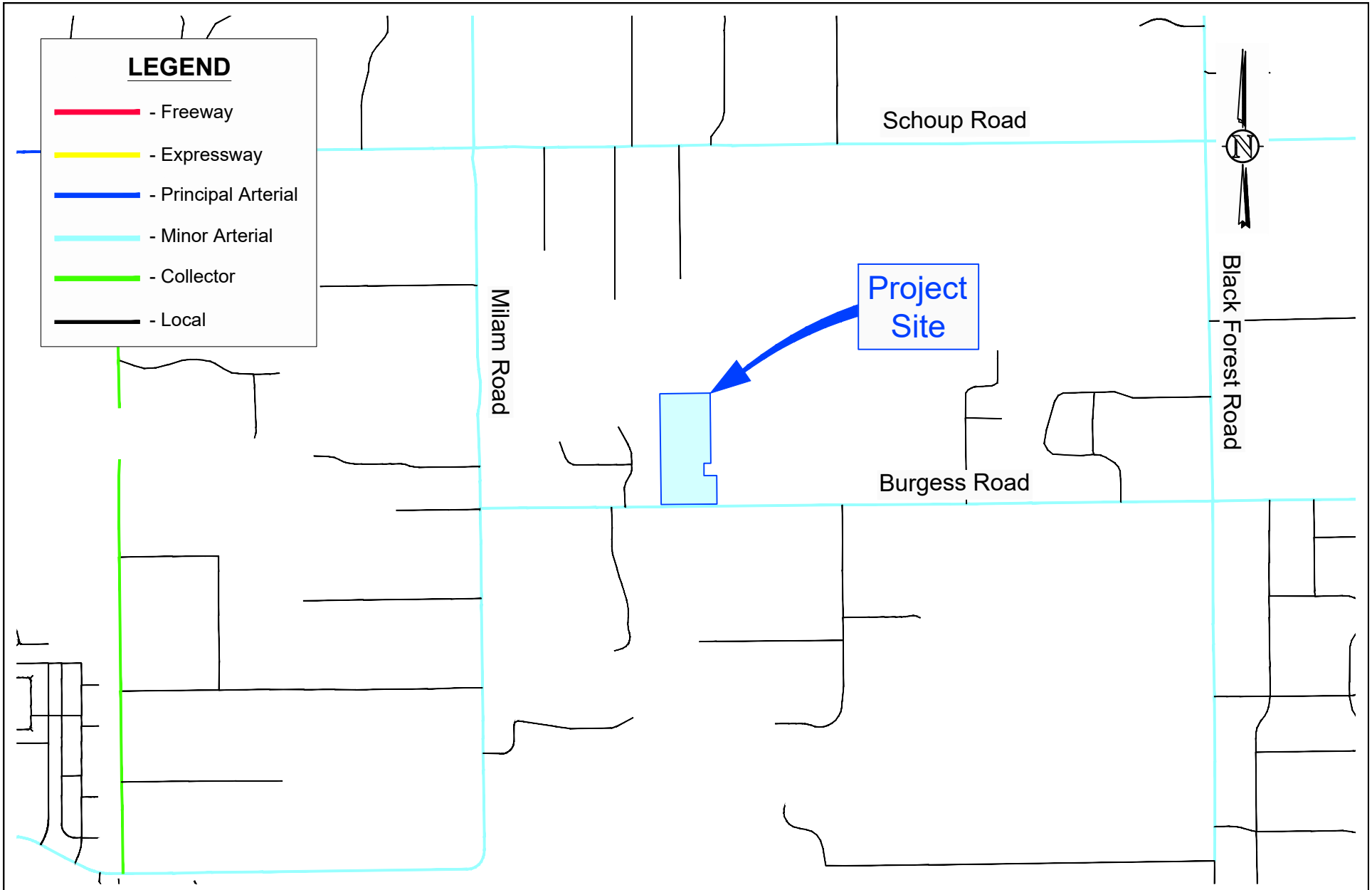
Figure 16 – Year 2045 Total Traffic Volumes – Morning Peak Hour
Figure 17 – Year 2045 Total Traffic Volumes – After School Peak Hour
Figure 18 – Laneage and Traffic Control – Year 2045 Traffic Volume Scenarios
Figure 19 – Conceptual Improvement Sketch for the Site Access on Burgess Road
Figure 20 – Conceptual Improvement Sketch for Milam Road at Burgess Road
Figure 21 – Conceptual Improvement Sketch for Burgess Road at Milam Road
Figure 22 – Intersection Sight Distance at the Site Access on Burgess Road



Haven School Traffic Impact Study
VICINITY MAP

Scale	1" = 2,000'	Date	June 25, 2024	Drawn by	JLH	Job #	Haven School	Figure	1

Haven School Traffic Impact Study
SITE LAYOUT

Scale	NTS	Date	June 25, 2024	Drawn by	JLH	Job #	Haven School	Figure	2

Figure 3 – Laneage and Traffic Control – Existing

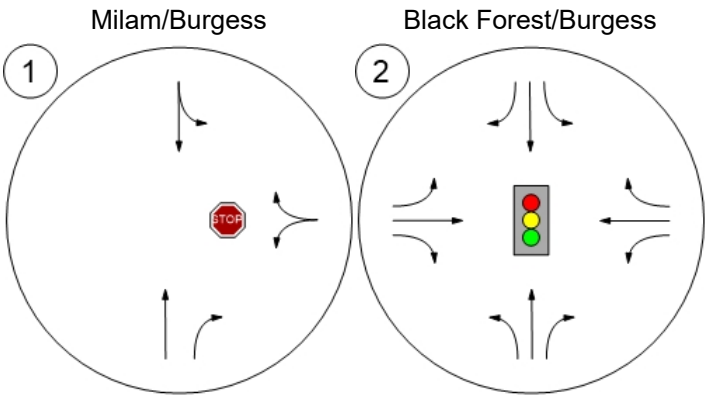


Figure 4 – Year 2023 Traffic Volumes – Morning Peak Hour

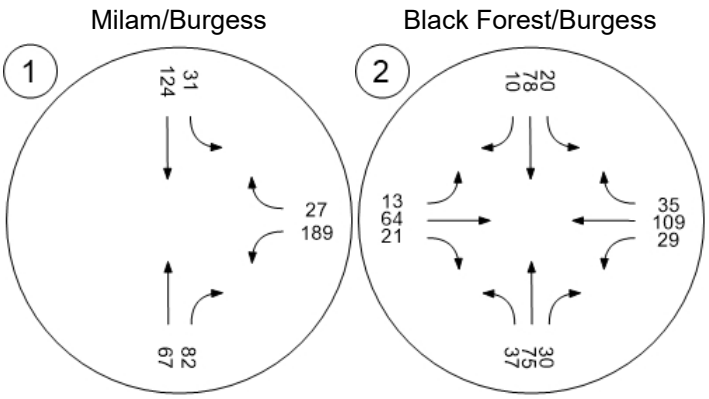
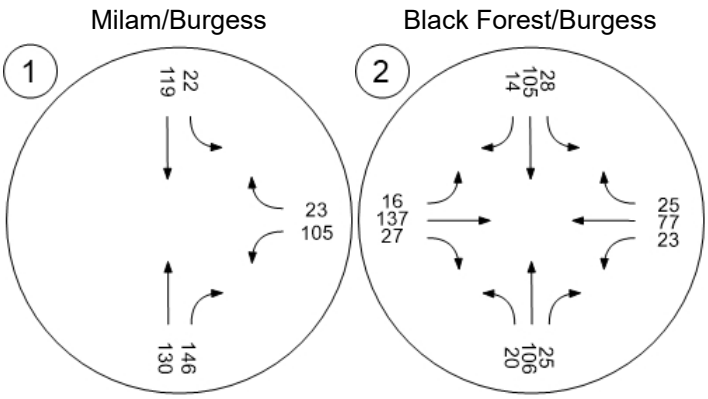
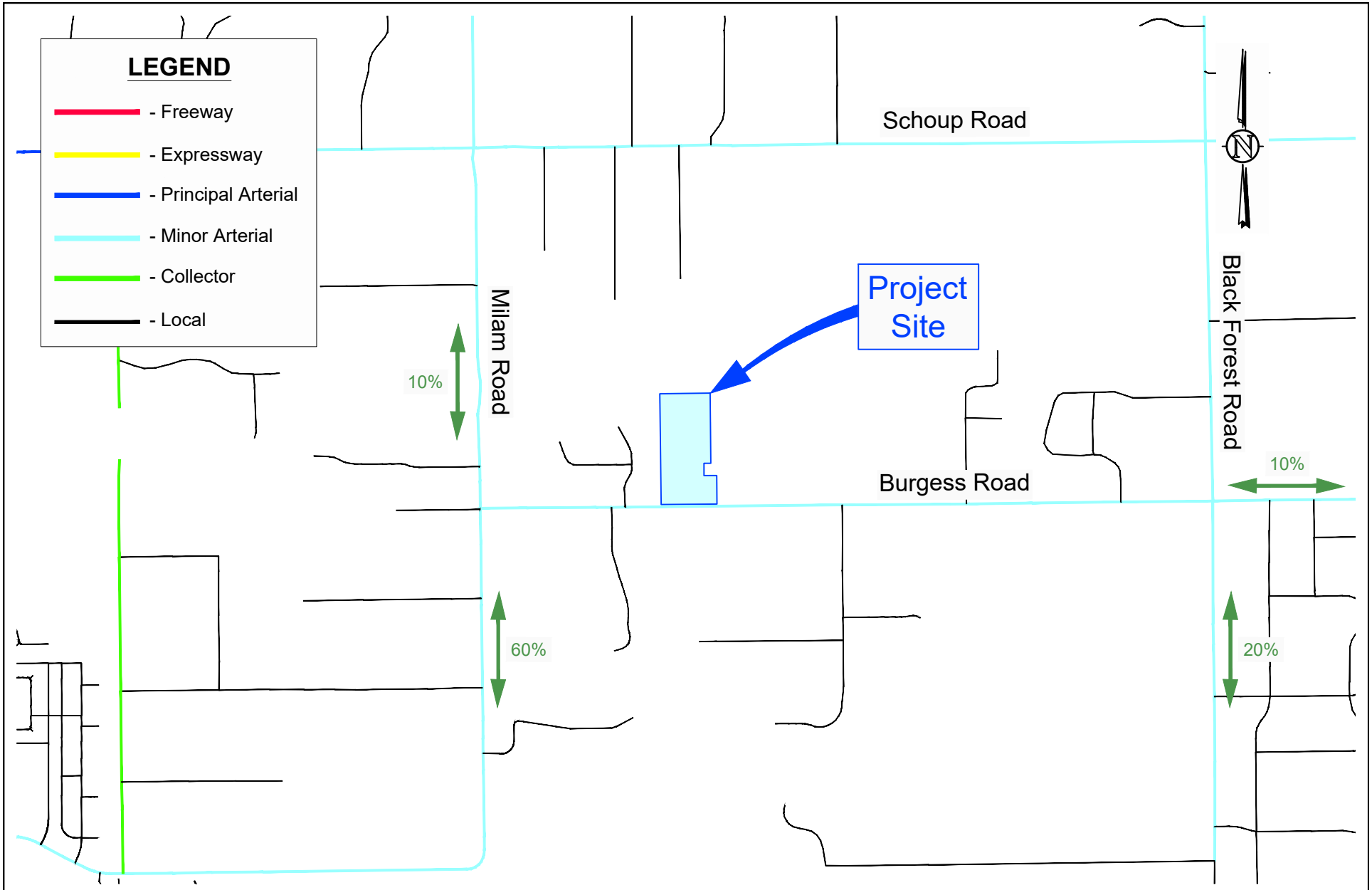


Figure 5 – Year 2023 Traffic Volumes – After School Peak Hour





STS

Haven School Traffic Impact Study
TRIP DISTRIBUTION

Scale	1" = 2,000'	Date	June 25, 2024	Drawn by	JLH	Job #	Haven School	Figure	6

Figure 7 – Tuesday & Thursday Trip Assignment – Morning Peak Hour

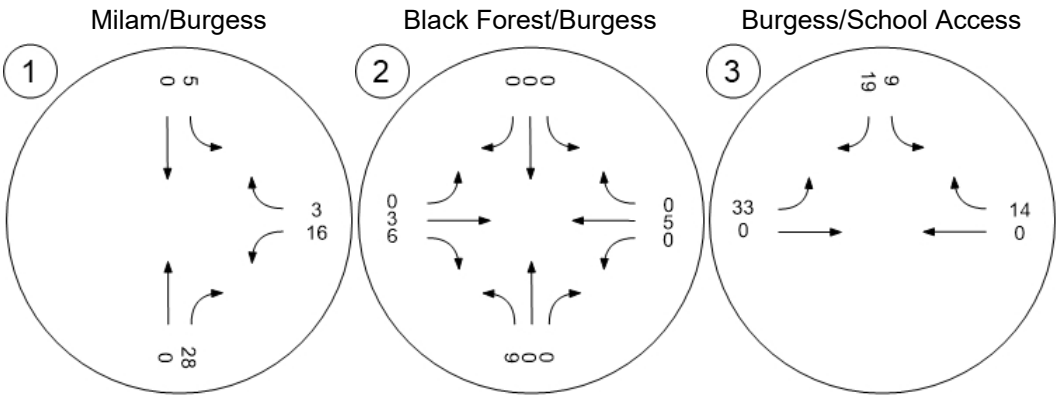


Figure 8 – Tuesday & Thursday Trip Assignment – After School Peak Hour

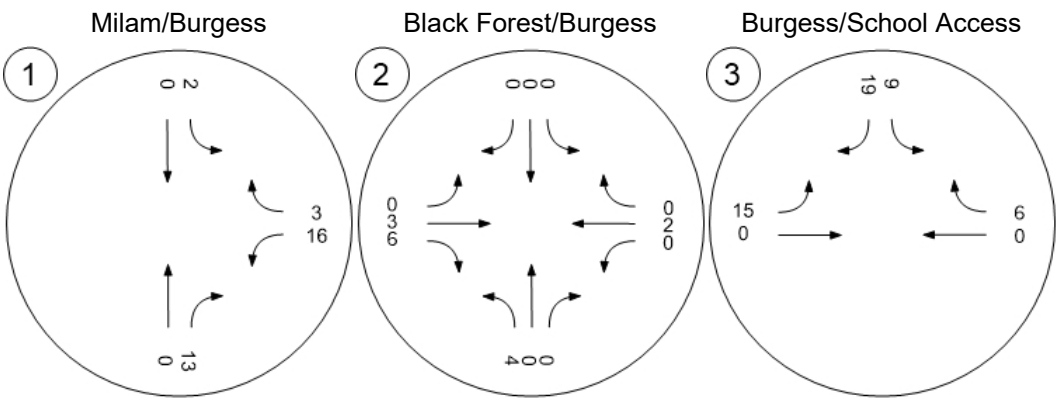


Figure 9 – Year 2026 Background Traffic Volumes – Morning Peak Hour

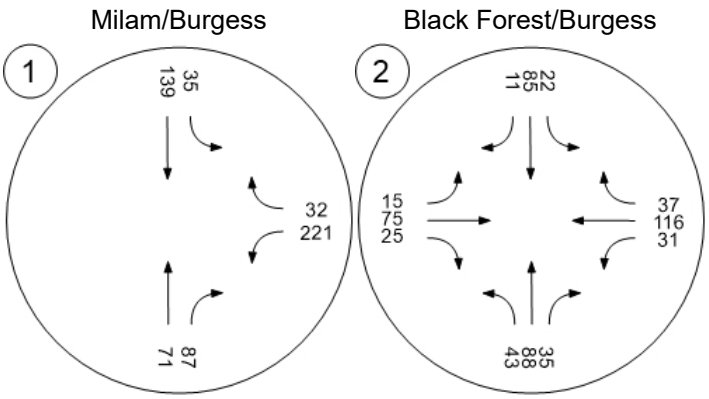


Figure 10 – Year 2026 Background Traffic Volumes – After School Peak Hour

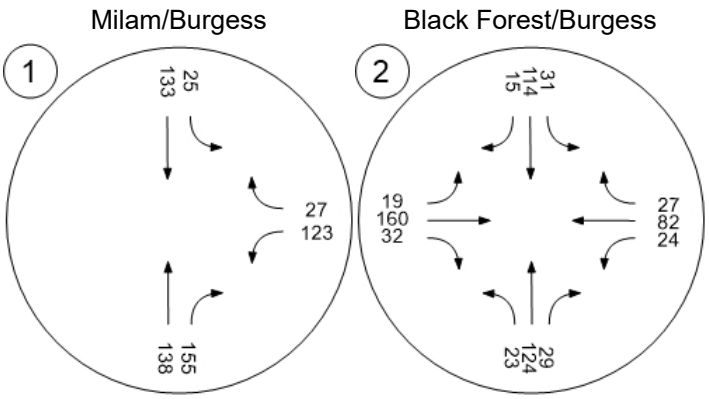


Figure 11 – Year 2026 Total Traffic Volumes – Morning Peak Hour

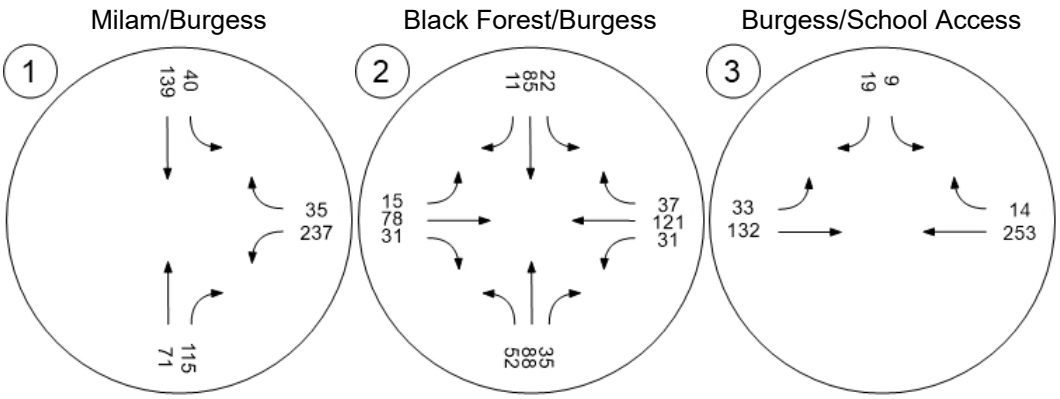


Figure 12 – Year 2026 Total Traffic Volumes – After School Peak Hour

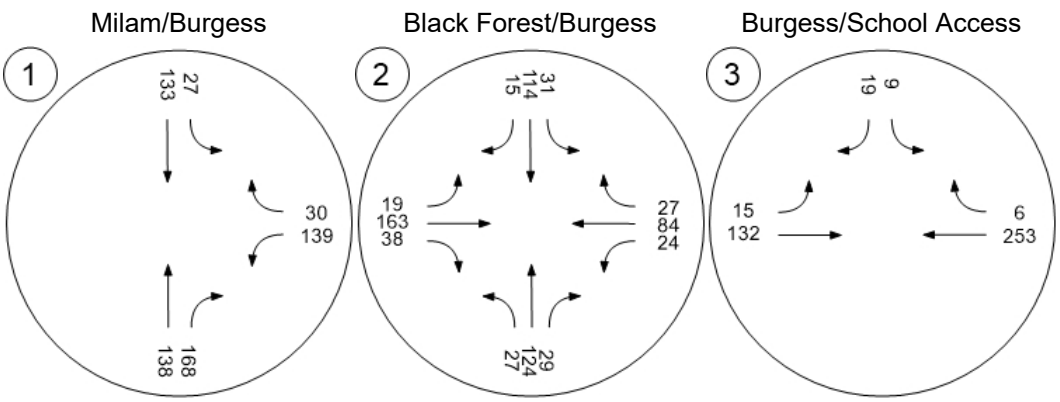


Figure 13 – Laneage and Traffic Control – Year 2026 Traffic Volume Scenarios

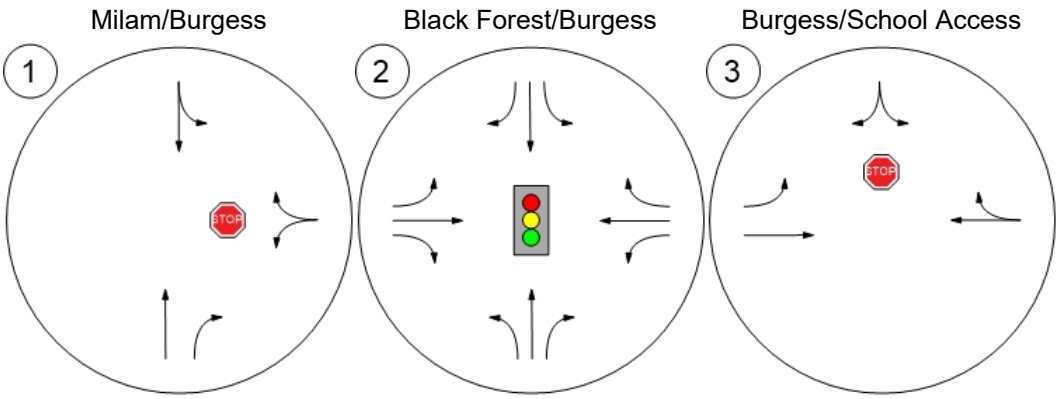
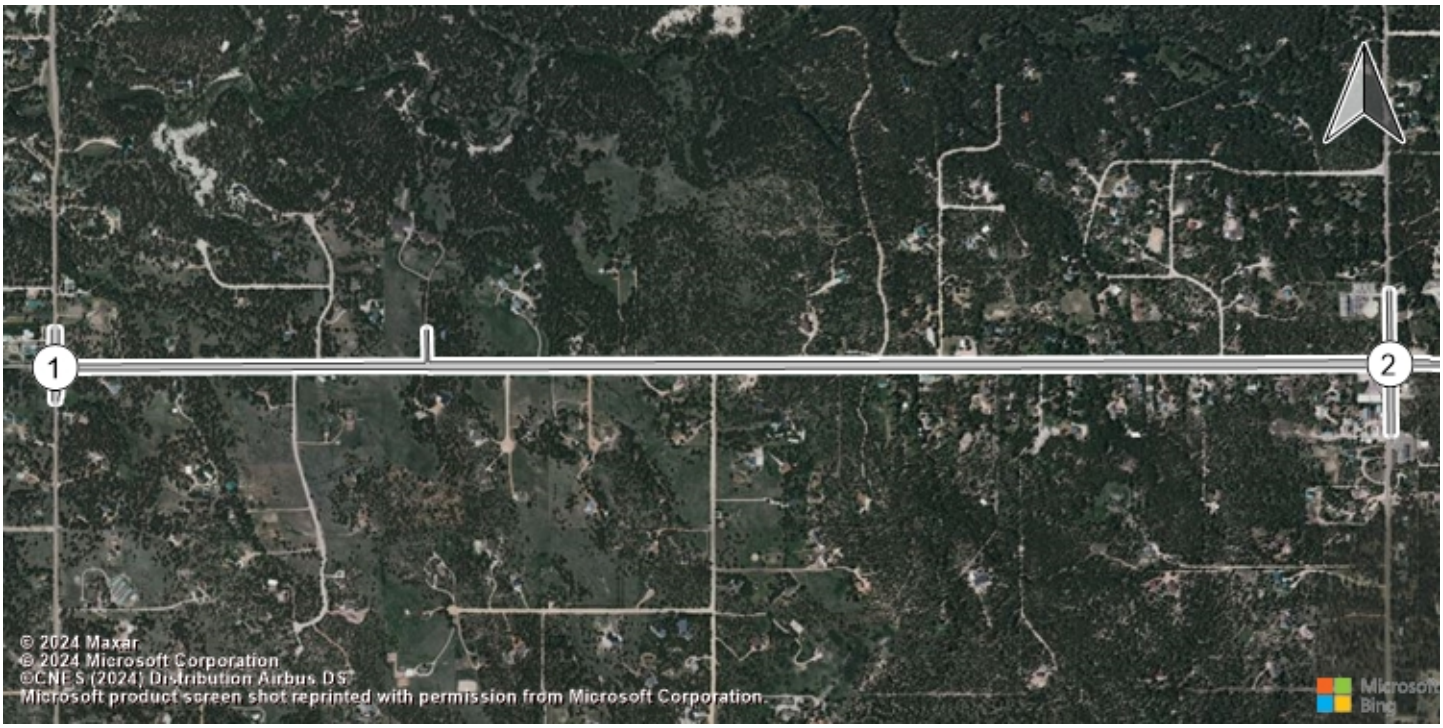


Figure 14 – Year 2045 Background Traffic Volumes – Morning Peak Hour



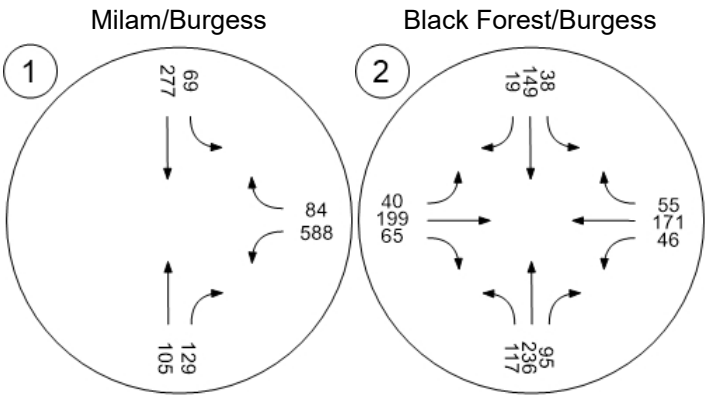
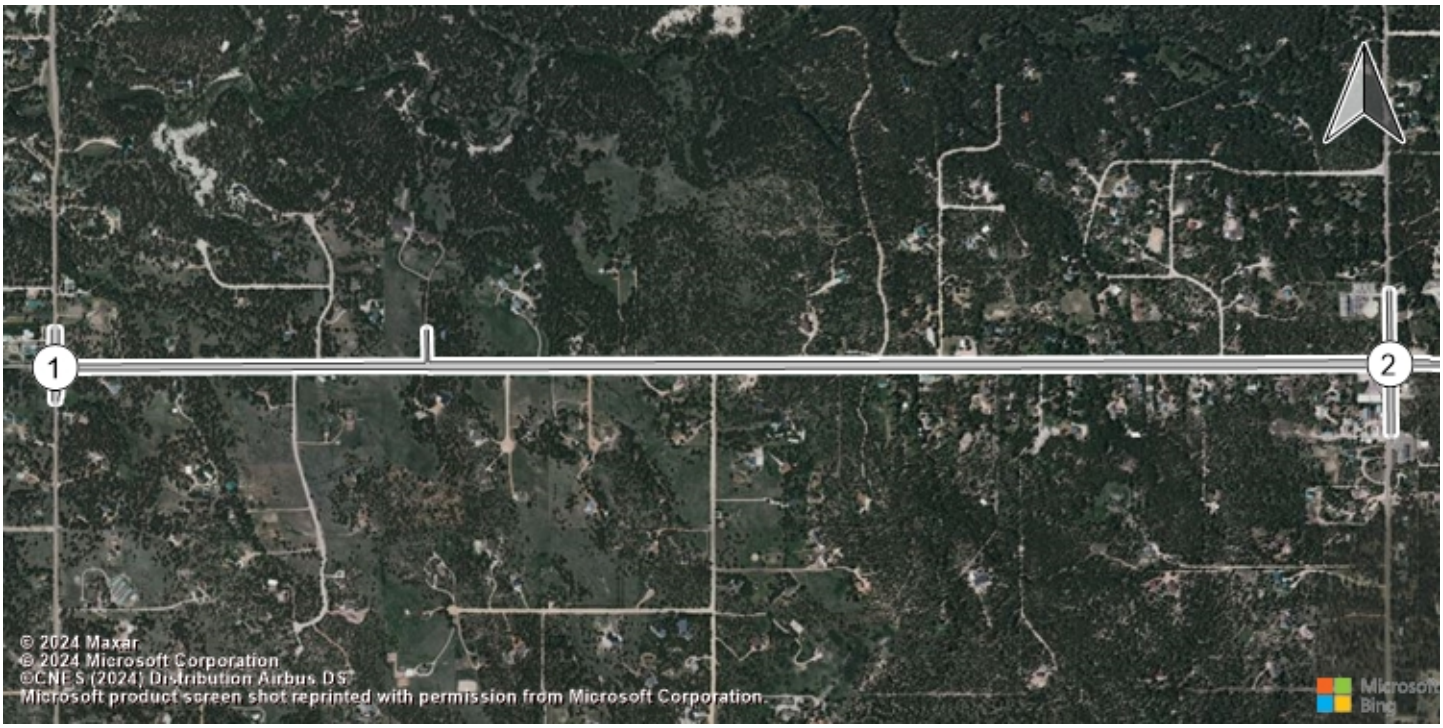


Figure 15 – Year 2045 Background Traffic Volumes – After School Peak Hour



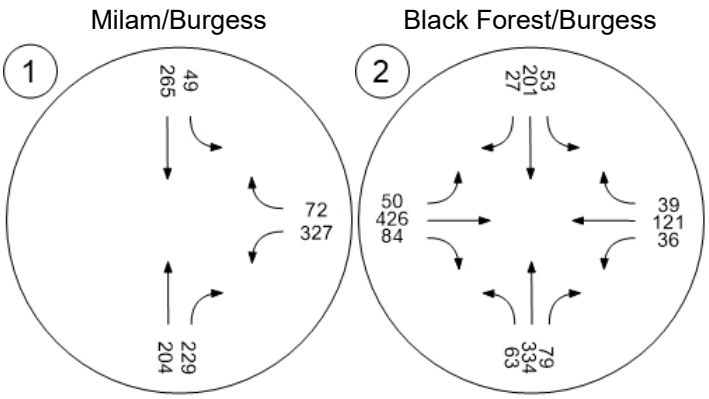


Figure 16 – Year 2045 Total Traffic Volumes – Morning Peak Hour

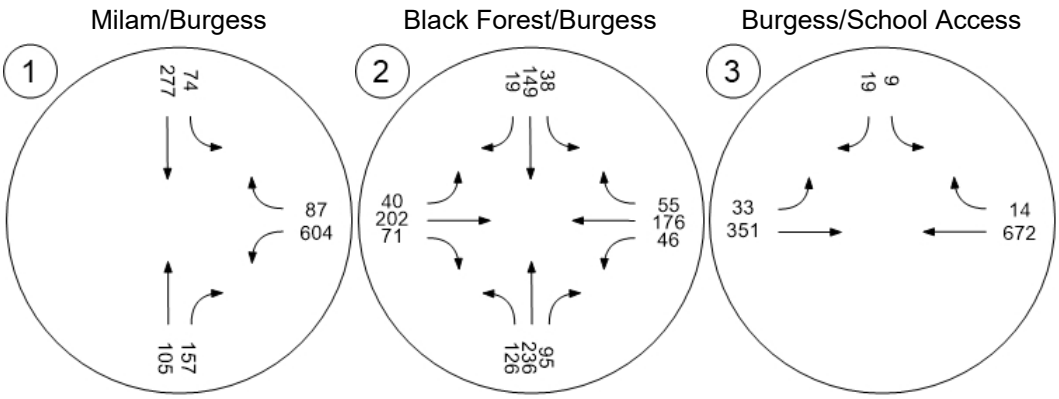


Figure 17 – Year 2045 Total Traffic Volumes – After School Peak Hour

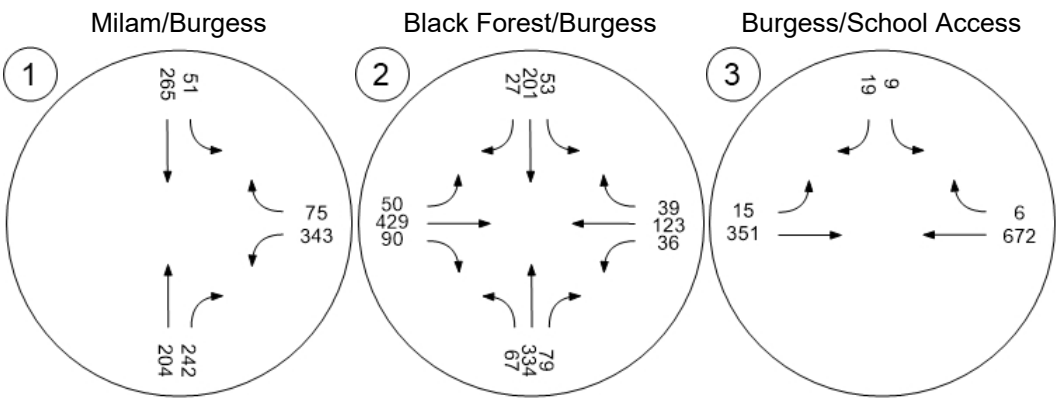
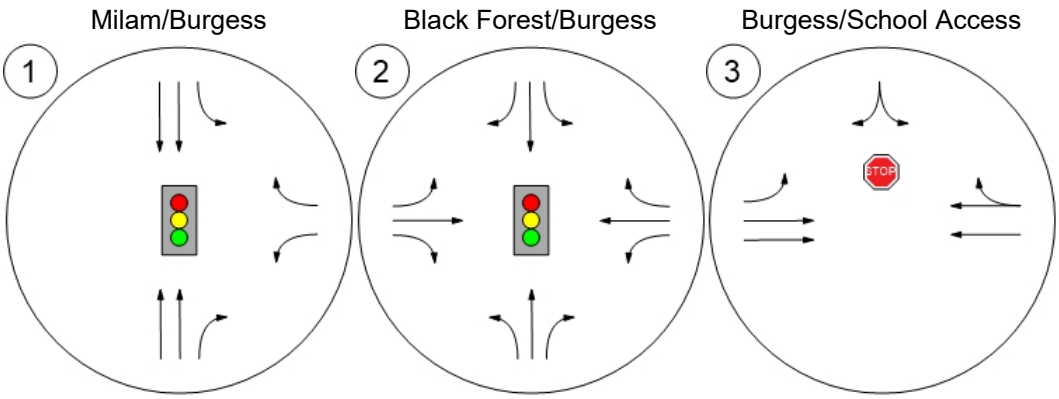
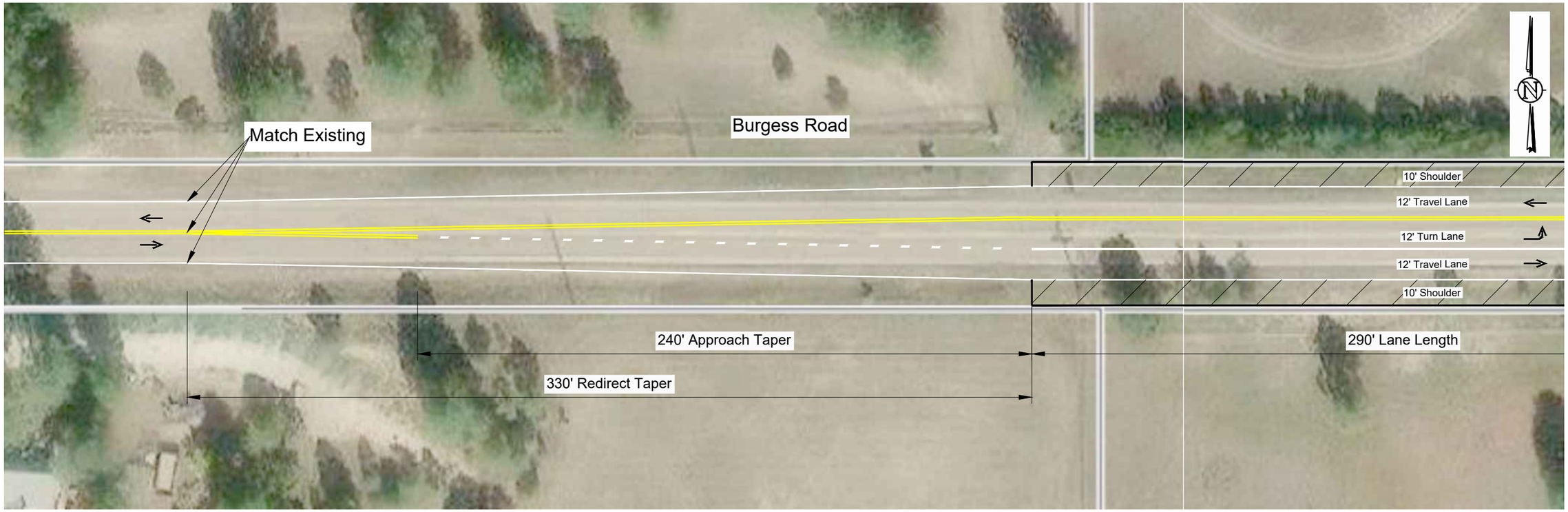
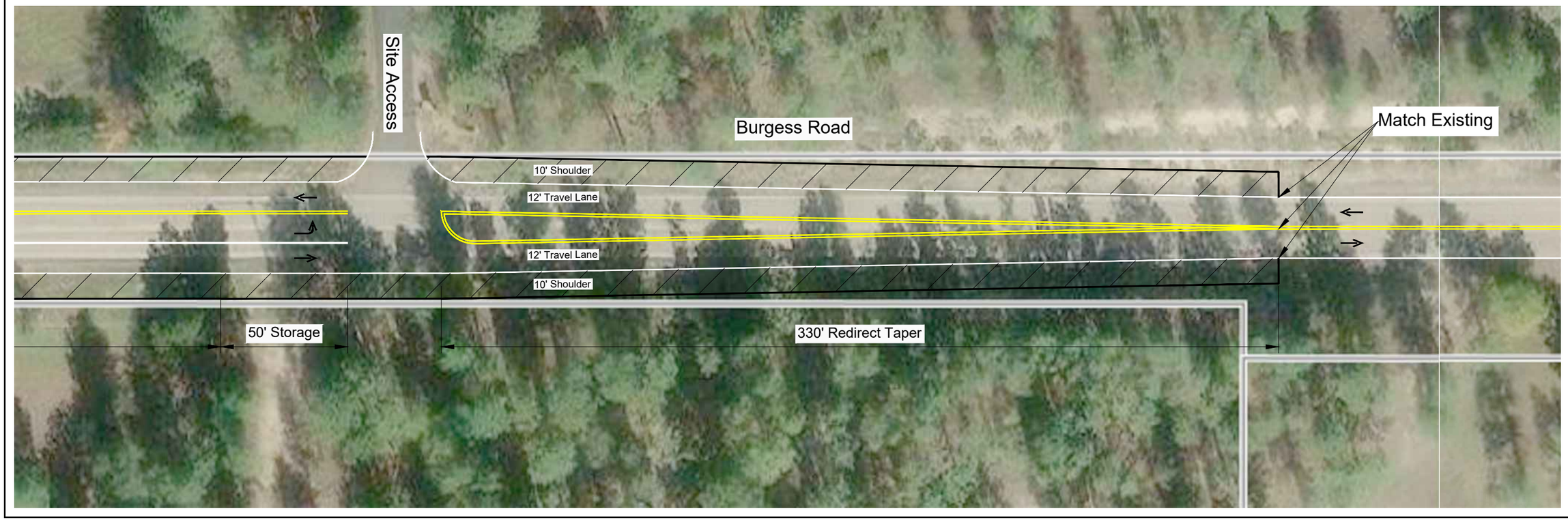


Figure 18 – Laneage and Traffic Control – Year 2045 Traffic Volume Scenarios







Haven School Traffic Impact Study

CONCEPTUAL IMPROVEMENT SKETCH FOR THE SITE ACCESS ON BURGESS ROAD

Scale	NTS	Date	June 25, 2024	Drawn by	JLH	Job #	Haven School	Figure	19

Milam Road

Match Existing

330' Redirect Taper

50' Storage

10' Shoulder

12' Travel Lane

12' Travel Lane

12' Travel Lane

10' Shoulder

Match Existing

240' Approach Taper

290' Lane Length

Burgess Road

200' Storage

50' Storage

290' Lane Length

Milam Road

330' Redirect Taper

240' Approach Taper

10' Shoulder

12' Travel Lane

12' Travel Lane

12' Travel Lane

10' Shoulder

Match Existing

Burgess Road

200' Storage

Haven School Traffic Impact Study

CONCEPTUAL IMPROVEMENT SKETCH FOR MILAM ROAD AT BURGESS ROAD

Scale	NTS	Date	June 25, 2024	Drawn by	JLH	Job #	Haven School	Figure	20

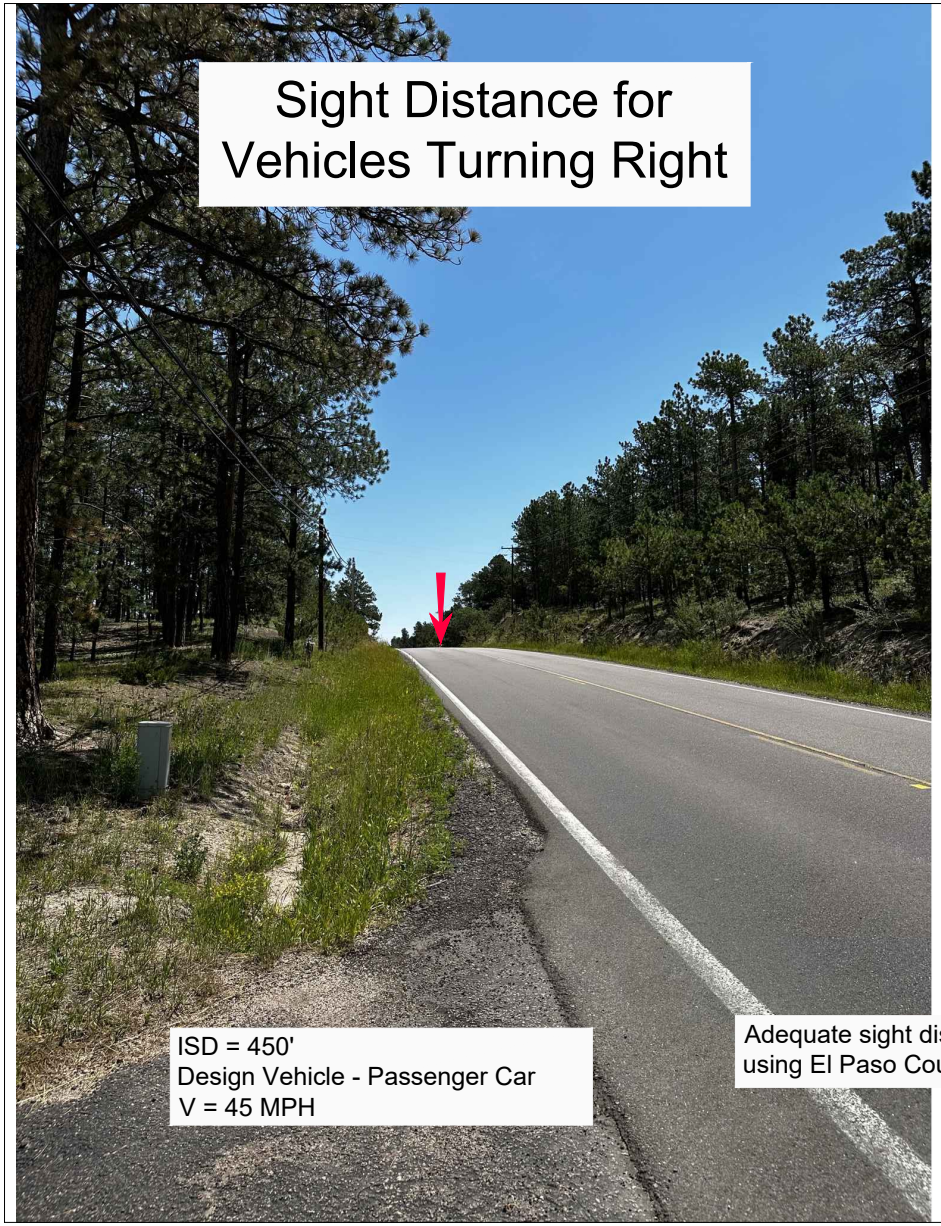
STS

CONCEPTUAL IMPROVEMENT SKETCH FOR BURGESS ROAD AT MILAM ROAD

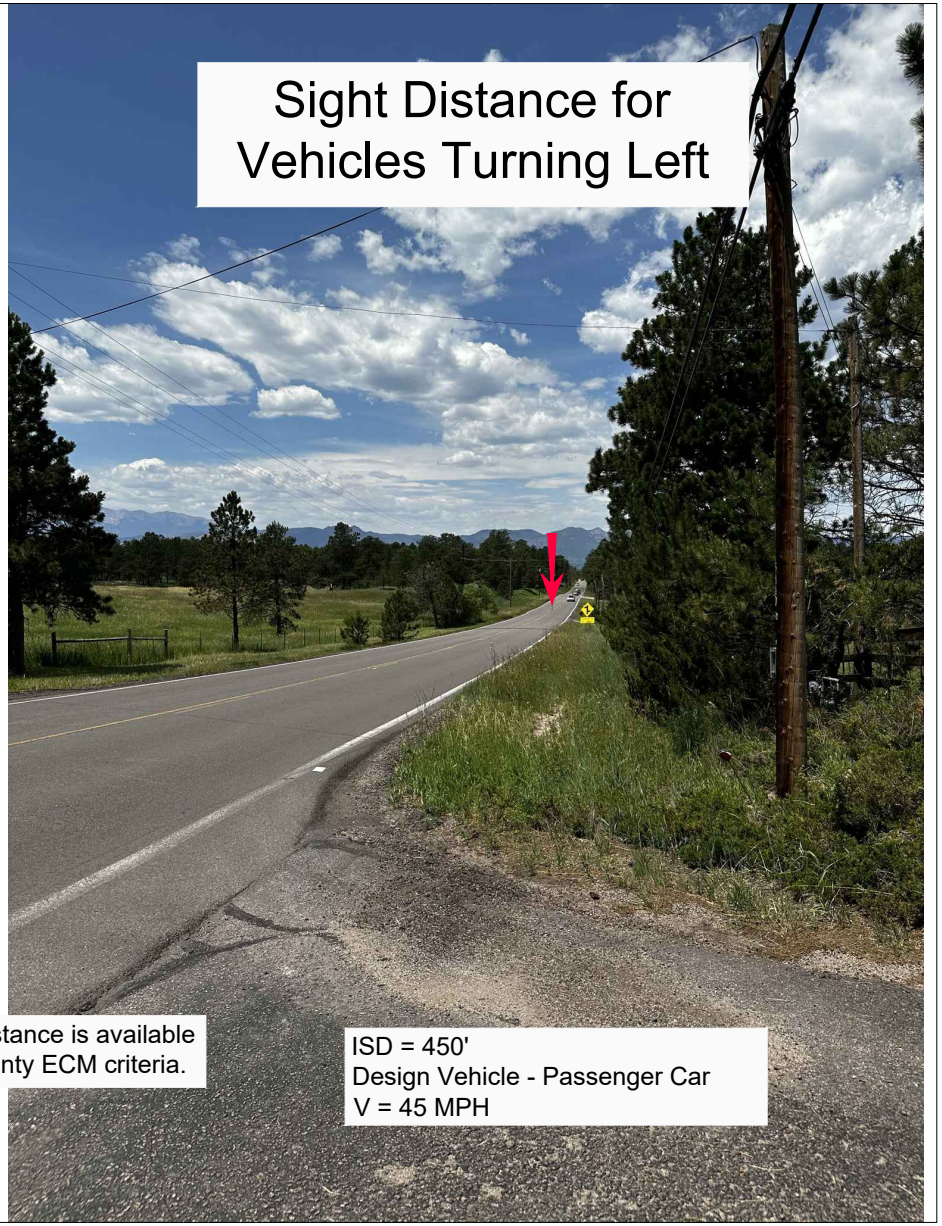
Haven School Traffic Impact Study

Scale	Date	Job #	Figure
NTS	June 25, 2024	Haven School	21

Drawn by: JLH



Adequate sight distance is available using El Paso County ECM criteria.



Haven School Traffic Impact Study

ENTERING SIGHT DISTANCE AT THE SITE ACCESS ON BURGESS ROAD

Scale	NTS	Date	June 25, 2024	Drawn by	JLH	Job #	Haven School	Figure	22

Appendix A

Project Correspondence

Haven School

Traffic Impact Study

1.0 Introduction

The Haven School is a tuition-free public program serving kindergarten through 12th grade homeschool students in the Colorado Springs area. It is located at 5484 Burgess Road in El Paso County. The property has two buildings that are used for the school and a single family dwelling unit that is not occupied. A vicinity map is contained in Figure 1 that shows the location of the site on the north side of Burgess Road. Figure 2 shows and aerial photo that was obtained from the El Paso County website. The buildings and their proximity to Burgess Road can be seen in the figure.

Haven School provides science, arts, and nature courses in the classical tradition. Kindergarten through 6th grade students come to the school one day per week on Monday through Thursday, and 7th through 12th grade students come to the school twice each week on Tuesdays and Thursdays. The school has a capacity of 40 kindergarten through 6th grade students, and 70 7th through 12th grade students. Haven School is open a total of thirty weeks during the school year.

A meeting was held with the County staff on June 27, 2023 to discuss the assumptions that will be used in the traffic study. Meeting minutes can be found in Appendix A.

This study has been prepared in conformance with the El Paso County criteria for traffic impact studies[1].

2.0 Project Description

2.1 Study Area

The study area includes the site access. It is a T-intersection with side-street stop control.

2.2 Study Assumptions

The following assumptions were utilized for this study.

Short-Term Study Horizon. The short-term horizon is assumed to be the Year 2025. The school should be at capacity by that time.

Long-Term Study Horizon. Year 2043 will be the long-term horizon because it is 20 years following the completion of the development.

Growth in Background Traffic. xxxxxxxx

Traffic Study Assumptions

[1] El Paso County Engineering Criteria Manual, Appendix B. May 16, 2021.

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

Future Roadway Improvements. xxxxxxxx

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.

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

3.0 Site Generated Traffic

3.1 Trip Generation

In order to estimate the traffic impacts associated with the Haven School, the trip generation was estimated using rates contained in the Institute of Transportation Engineers Trip Generation manual[2] (see Table 3). The trip generation estimate was based on the following assumptions.

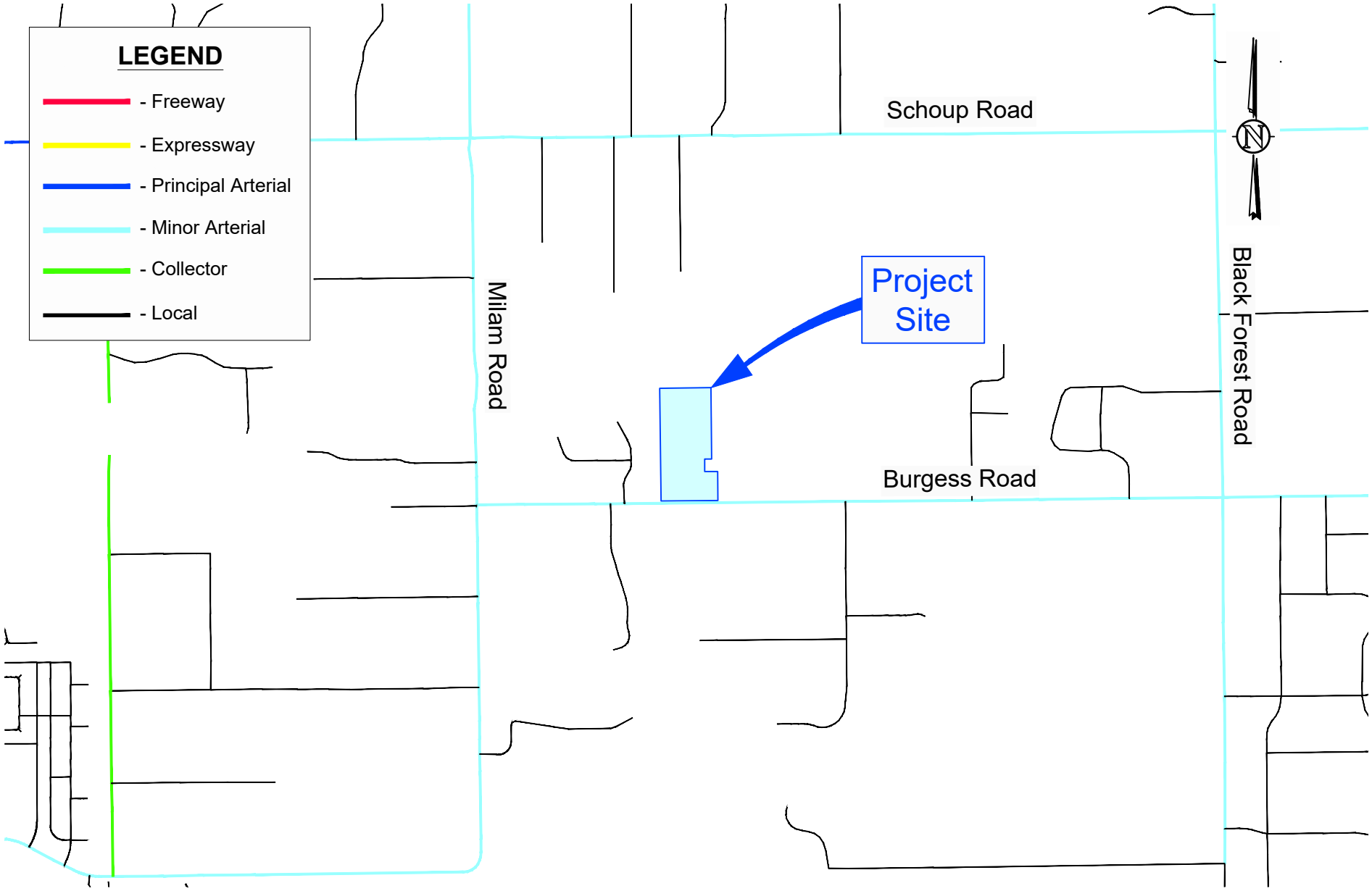
- **K – 6th Grade Students.** These students attend the school on one day between Monday and Thursday. The school has a capacity of 40 K through 6th grade students, so 10 students were assumed to attend on each day.
- **7th – 12th Grade Students.** These students attend the school on Tuesday and Thursday. The school has a capacity of 70 7th through 12th grade students.

3.2 Trip Distribution and Assignment

The trip distribution for the development is contained in Figure 6. It was based on population density near the school. The peak hour assignments are contained in Figures 7 and 8.

Traffic Study Assumptions

[2] Trip Generation, 11th Edition. Institute of Transportation Engineers. September 2021.

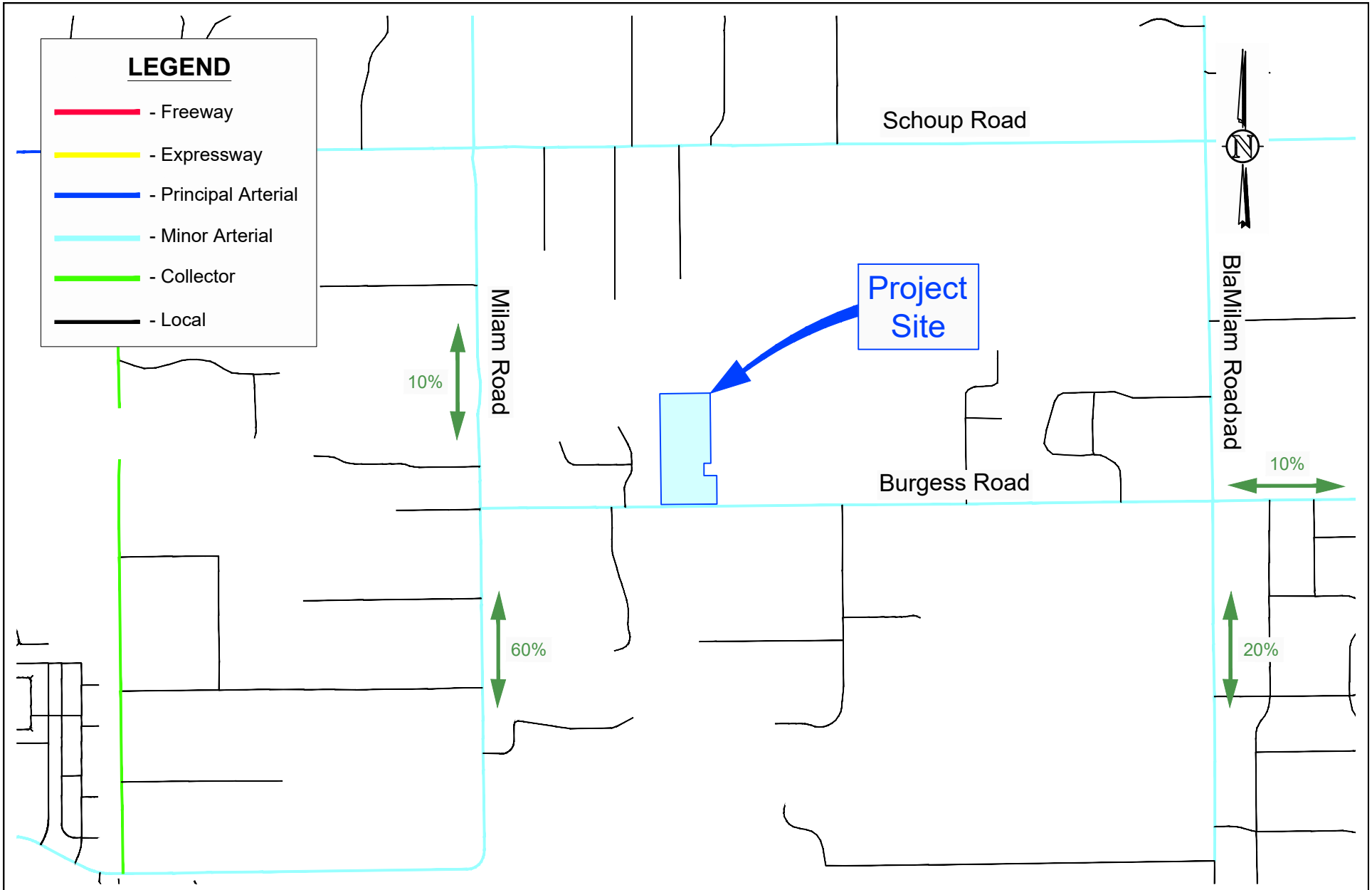


Haven School Traffic Impact Study
VICINITY MAP

Scale	1" = 2,000'	Date	June 27, 2023	Drawn by	JLH	Job #	Haven School	Figure	1

Haven School Traffic Impact Study
SITE PLAN

Scale	NTS	Date	June 27, 2023	Drawn by	JLH	Job #	Haven School	Figure	2



STS

Haven School Traffic Impact Study
TRIP DISTRIBUTION

Scale	1" = 2,000'	Date	June 27, 2023	Drawn by	JLH	Job #	Haven School	Figure	6

Table 3. Trip Generation Estimate

Land Use	ITE Code [1]	Size	Unit	Trips											
				Average Weekday				Morning Peak Hour of Generator				Afternoon Peak Hour of Generator			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Monday & Wednesday															
Private School (K-8)	530	10	Students	4.11	42	21	21	1.01	10	6	4	0.60	6	3	3
Tuesday & Thursday															
Private School (K-12)	532	80	Students	2.48	198	99	99	0.80	64	40	24	0.53	42	18	25

Notes

1. The trip generation rates were obtained from Trip Generation, 11th Edition (Institute of Transportation Engineers, 2021).

Haven School Meeting with Jeff Rice

June 27, 2023

- Use 0.5 PHF for school
- No improvements are planned on Burgess Road
- Significant impacts for signalized intersection
- Count Milman and Black Forest Road
- Sight distance study is required
- Does the road cross section fit the ADT?

Appendix B

PPACG Traffic Volume Projections

Gmail **Joe Henderson <thetrafficczar@gmail.com>**

Projected Volumes in El Paso County

5 messages

Joe Henderson <joe@sustainabletrafficsolutions.com> Wed, Aug 23, 2023 at 1:54 PM
To: dmiller@ppacg.org, jobrien@ppacg.org, jbechtel@ppacg.org, jliosatos@ppacg.org

I'm working on a traffic impact study in El Paso County and I need to develop annual growth rates for the roadways in the study area. Does PPACG publish traffic count data and the projected volumes? I've looked your website and can't find them.

--
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

William Mast <wmast@ppacg.org> Wed, Aug 23, 2023 at 2:33 PM
To: "joe@sustainabletrafficsolutions.com" <joe@sustainabletrafficsolutions.com>

Hi Joseph,

We do not publish the model outputs, but can share them. Where is your study area and which forecast years are you interested in?

William Mast, GISP
GIS Admin & Modeling Lead
Pikes Peak Area Council of Governments
(719) 471-7080 ext. 109

Pikes Peak Area Council of Governments
Communities Working Together

[Quoted text hidden]

Joe Henderson <joe@sustainabletrafficsolutions.com> Wed, Aug 23, 2023 at 2:52 PM
To: William Mast <wmast@ppacg.org>

William,

The roads in my project at Burgess Road, Milam Road, and Black Forest Road. The long-term horizon year in my study is 2045.

Does that give you enough information?

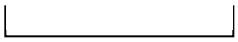
Joe
[Quoted text hidden]

William Mast <wmast@ppacg.org> Wed, Aug 23, 2023 at 8:56 PM
To: Joe Henderson <joe@sustainabletrafficsolutions.com>

The attached png displays the 2045 directional volumes for Burgess Rd, Milam to Black Forest.

[Quoted text hidden]
[Quoted text hidden]

> [Quoted text hidden]
> [Quoted text hidden]
> [Quoted text hidden]
> [Quoted text hidden]



--

Joseph L. Henderson, PE, PTOE

Principal

Sustainable Traffic Solutions, Inc.

823 West 124th Drive

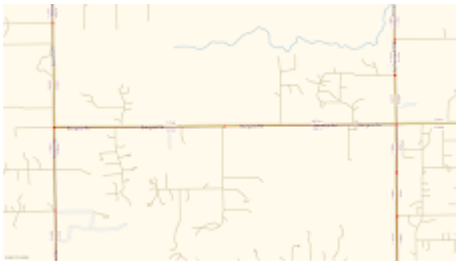
Westminster, CO 80234

303.589.6875

joe@sustainabletrafficsolutions.com

sustainabletrafficsolutions.com

Licensed in CO, WY, and IA



Burgess Rd Tot Volume 2045.png
343K

Joe Henderson <joe@sustainabletrafficsolutions.com> Wed, Aug 23, 2023 at 8:58 PM
To: William Mast <wmast@ppacg.org>

Thanks. That's exactly what I needed.
[Quoted text hidden]
[Quoted text hidden]
[Quoted text hidden]

Burgess Rd

Burgess Rd

Burgess Rd

Burgess Rd

Burgess Rd

Black Forest Rd

Black Forest Rd

Milam Rd

Milam Rd

4769.4
5407.0

4884.0
5506.5

6039.8
6363.1

6347.0
6647.5

7179.8
7478.9

6970.9
7281.0

4541.3
4361.7

4541.4
4361.8

4654.0
4458.1

4096.7
3749.4

7408.1
7869.5

7408.1
7869.5

7669.8
8125.3

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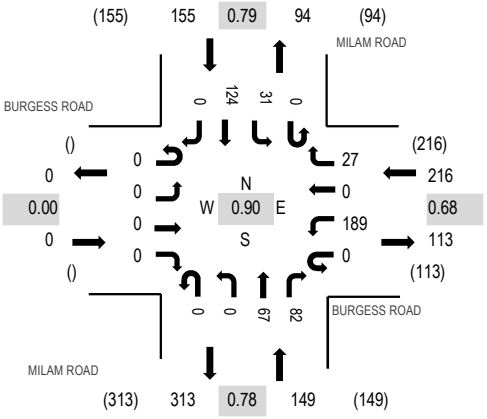
Appendix C

Traffic Count Data

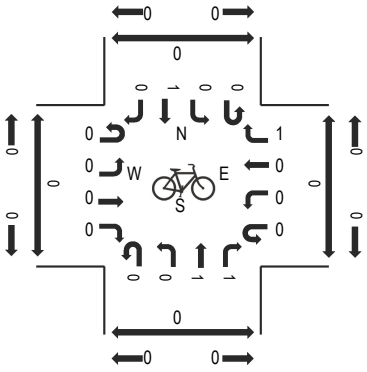
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 MILAM ROAD & BURGESS ROAD AM
Date: Wednesday, July 19, 2023
Peak Hour: 08:30 AM - 09:30 AM
Peak 15-Minutes: 09:00 AM - 09:15 AM

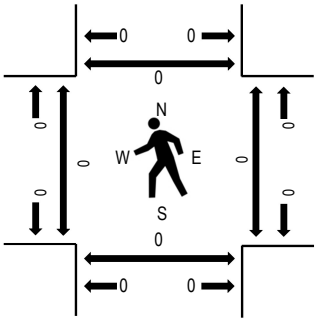
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

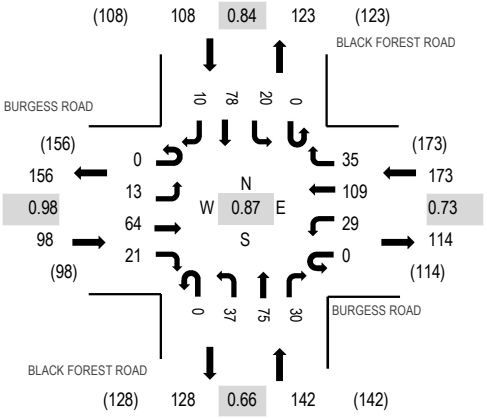
Traffic Counts - Motorized Vehicles

Interval Start Time	BURGESS ROAD Eastbound				BURGESS ROAD Westbound				MILAM ROAD Northbound				MILAM ROAD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
8:30 AM	0	0	0	0	0	49	0	5	0	0	18	18	0	3	24	0	117	520	0	0	0	0
8:45 AM	0	0	0	0	0	34	0	3	0	0	15	24	0	10	39	0	125		0	0	0	0
9:00 AM	0	0	0	0	0	66	0	13	0	0	13	13	0	9	30	0	144		0	0	0	0
9:15 AM	0	0	0	0	0	40	0	6	0	0	21	27	0	9	31	0	134		0	0	0	0
Count Total	0	0	0	0	0	189	0	27	0	0	67	82	0	31	124	0	520		0	0	0	0
Peak Hour	0	0	0	0	0	189	0	27	0	0	67	82	0	31	124	0	520		0	0	0	0

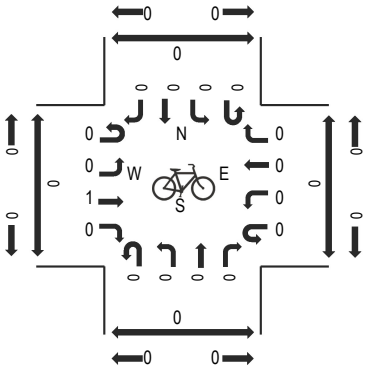
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 BLACK FOREST ROAD & BURGESS ROAD AM
Date: Wednesday, July 19, 2023
Peak Hour: 08:30 AM - 09:30 AM
Peak 15-Minutes: 09:15 AM - 09:30 AM

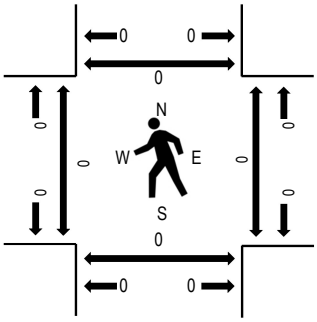
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

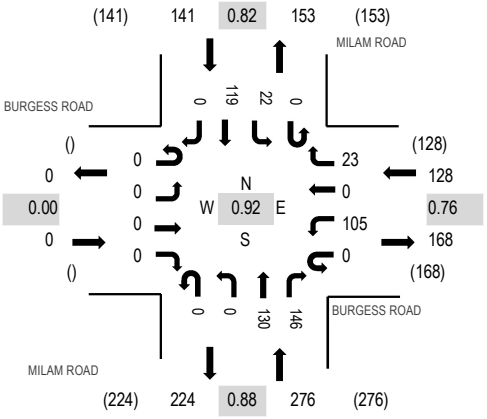
Traffic Counts - Motorized Vehicles

Interval Start Time	BURGESS ROAD Eastbound				BURGESS ROAD Westbound				BLACK FOREST ROAD Northbound				BLACK FOREST ROAD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
8:30 AM	0	3	14	6	0	9	40	10	0	3	17	3	0	3	20	4	132	521	0	0	0	0
8:45 AM	0	5	13	7	0	5	22	11	0	9	22	3	0	4	20	3	124		0	0	0	0
9:00 AM	0	4	18	3	0	8	22	7	0	12	9	10	0	5	17	0	115		0	0	0	0
9:15 AM	0	1	19	5	0	7	25	7	0	13	27	14	0	8	21	3	150		0	0	0	0
Count Total	0	13	64	21	0	29	109	35	0	37	75	30	0	20	78	10	521		0	0	0	0
Peak Hour	0	13	64	21	0	29	109	35	0	37	75	30	0	20	78	10	521		0	0	0	0

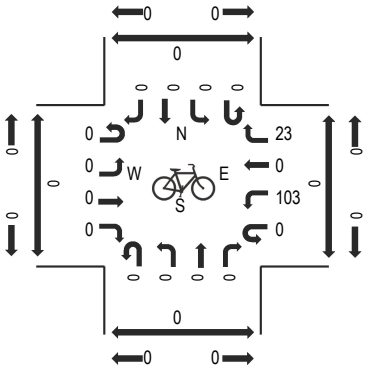
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 MILAM ROAD & BURGESS ROAD PM
Date: Wednesday, July 19, 2023
Peak Hour: 02:45 PM - 03:45 PM
Peak 15-Minutes: 03:30 PM - 03:45 PM

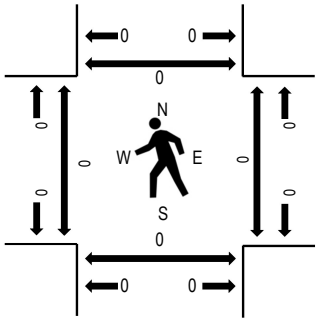
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

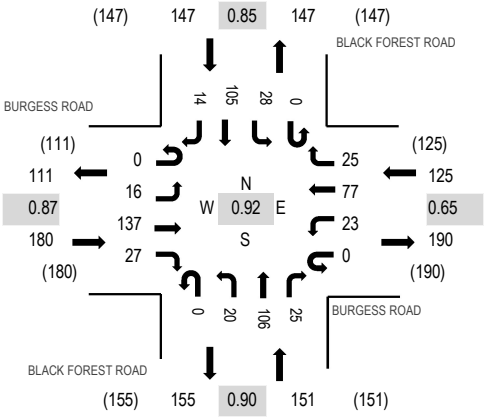
Traffic Counts - Motorized Vehicles

Interval Start Time	BURGESS ROAD Eastbound				BURGESS ROAD Westbound				MILAM ROAD Northbound				MILAM ROAD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
2:45 PM	0	0	0	0	0	22	0	4	0	0	28	26	0	6	37	0	123	545	0	0	0	0
3:00 PM	0	0	0	0	0	25	0	5	0	0	38	32	0	6	33	0	139		0	0	0	0
3:15 PM	0	0	0	0	0	22	0	8	0	0	35	43	0	3	24	0	135		0	0	0	0
3:30 PM	0	0	0	0	0	36	0	6	0	0	29	45	0	7	25	0	148		0	0	0	0
Count Total	0	0	0	0	0	105	0	23	0	0	130	146	0	22	119	0	545		0	0	0	0
Peak Hour	0	0	0	0	0	105	0	23	0	0	130	146	0	22	119	0	545		0	0	0	0

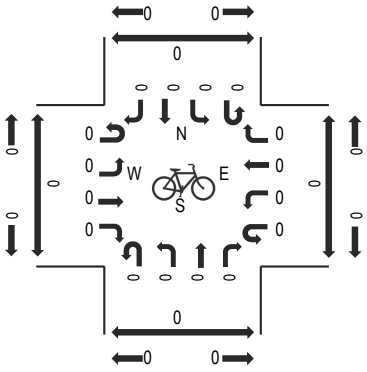
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 BLACK FOREST ROAD & BURGESS ROAD PM
Date: Wednesday, July 19, 2023
Peak Hour: 02:45 PM - 03:45 PM
Peak 15-Minutes: 03:15 PM - 03:30 PM

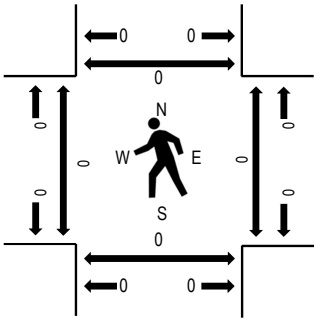
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

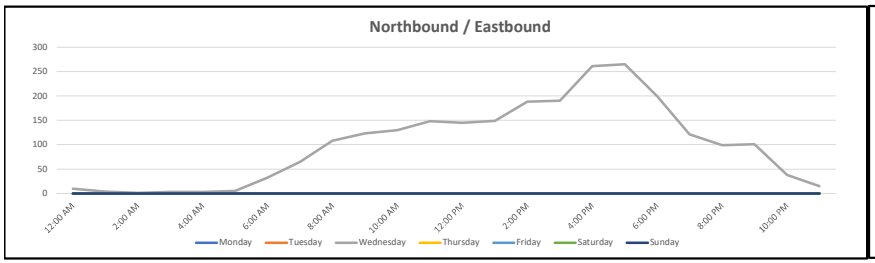
Traffic Counts - Motorized Vehicles

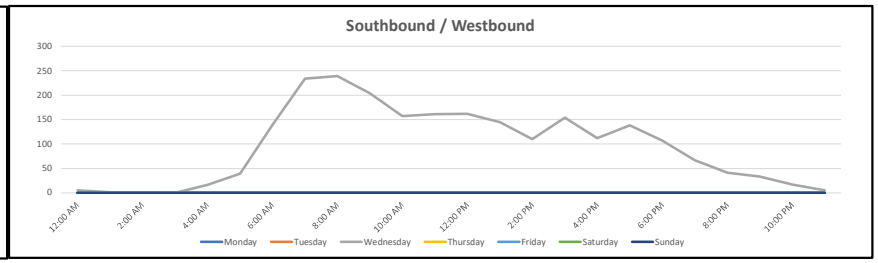
Interval Start Time	BURGESS ROAD Eastbound				BURGESS ROAD Westbound				BLACK FOREST ROAD Northbound				BLACK FOREST ROAD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
2:45 PM	0	3	37	6	0	5	11	9	0	2	22	8	0	7	28	4	142	603	0	0	0	0
3:00 PM	0	4	29	4	0	6	14	3	0	7	27	8	0	9	30	4	145		0	0	0	0
3:15 PM	0	3	37	12	0	8	29	11	0	3	31	3	0	4	19	3	163		0	0	0	0
3:30 PM	0	6	34	5	0	4	23	2	0	8	26	6	0	8	28	3	153		0	0	0	0
Count Total	0	16	137	27	0	23	77	25	0	20	106	25	0	28	105	14	603		0	0	0	0
Peak Hour	0	16	137	27	0	23	77	25	0	20	106	25	0	28	105	14	603		0	0	0	0

Vehicle Volume Report - Hourly

Site Description: BURGESS RD E.O. HIGH MEADOWS DR
Site Number: 3
Start Date: 7/19/2023
End Date: 7/19/2023

Time	Monday 7/24/23			Tuesday 7/25/23			Wednesday 7/19/23			Thursday 7/20/23			Friday 7/21/23			Saturday 7/22/23			Sunday 7/23/23			3 Day Avg Tue-Thu		5 Day Avg Mon-Fri		7 Day Avg Mon-Sun	
	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	EB	WB	EB	WB
12:00 AM	-	-	-	-	-	-	10	5	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 AM	-	-	-	-	-	-	4	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 AM	-	-	-	-	-	-	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 AM	-	-	-	-	-	-	3	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	-	-	-	-	-	-	3	16	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 AM	-	-	-	-	-	-	5	39	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM	-	-	-	-	-	-	33	139	172	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 AM	-	-	-	-	-	-	65	234	299	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 AM	-	-	-	-	-	-	108	239	347	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 AM	-	-	-	-	-	-	123	204	327	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 AM	-	-	-	-	-	-	130	157	287	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	-	-	-	-	-	-	148	161	309	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 PM	-	-	-	-	-	-	145	162	307	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1:00 PM	-	-	-	-	-	-	149	145	294	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2:00 PM	-	-	-	-	-	-	188	110	298	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	-	-	-	-	-	-	190	154	344	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 PM	-	-	-	-	-	-	261	112	373	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5:00 PM	-	-	-	-	-	-	265	138	403	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 PM	-	-	-	-	-	-	199	107	306	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7:00 PM	-	-	-	-	-	-	121	67	188	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8:00 PM	-	-	-	-	-	-	99	41	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9:00 PM	-	-	-	-	-	-	101	33	134	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10:00 PM	-	-	-	-	-	-	38	17	55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 PM	-	-	-	-	-	-	15	5	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 9:00 AM	-	-	-	-	-	-	**206**	**612**	**818**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM - 6:00 PM	-	-	-	-	-	-	**716**	**404**	**1120**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6:00 AM - 7:00 PM	-	-	-	-	-	-	**2004**	**2062**	**4066**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12:00 AM - 12:00 AM	-	-	-	-	-	-	**2404**	**2287**	**4691**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Percent	-	-	-	-	-	-	***51.2%***	***48.8%***	***100.0%***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
AM Peak	-	-		-	-		**8:00 AM**	**9:00 AM**		-	-		-	-		-	-		-	-							
PM Peak	-	-		-	-		**5:00 PM**	**6:00 PM**		-	-		-	-		-	-		-	-							





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Vehicle Classification Report - Hourly

Site Description: BURGESS RD E.O. HIGH MEADOWS DR
Site Number: 3
Start Date: 7/19/2023
End Date: 7/19/2023

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

		FHWA Vehicle Classification - Total Study												
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Eastbound	2404	10	1606	655	1	122	6	0	3	1	0	0	0	0
Percent	*100.0%*	*0.4%*	*66.8%*	*27.2%*	*0.0%*	*5.1%*	*0.2%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Westbound	2287	11	1452	620	1	186	11	0	2	3	0	0	1	0
Percent	*100.0%*	*0.5%*	*63.5%*	*27.1%*	*0.0%*	*8.1%*	*0.5%*	*0.0%*	*0.1%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Total	4691	21	3058	1275	2	308	17	0	5	4	0	0	1	0
Percent	*100.0%*	*0.4%*	*65.2%*	*27.2%*	*0.0%*	*6.6%*	*0.4%*	*0.0%*	*0.1%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

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Site Description: BURGESS RD E.O. HIGH MEADOWS DR
Site Number: 3
Start Date: 7/19/2023
End Date: 7/19/2023

Vehicle Classification Report (Eastbound - 07/19/2023)

Wednesday		Eastbound												
		Classes												
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13
7/19/23														
12:00 AM	10	0	5	5	0	0	0	0	0	0	0	0	0	0
1:00 AM	4	0	3	1	0	0	0	0	0	0	0	0	0	0
2:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	3	0	2	1	0	0	0	0	0	0	0	0	0	0
4:00 AM	3	1	2	0	0	0	0	0	0	0	0	0	0	0
5:00 AM	5	0	4	1	0	0	0	0	0	0	0	0	0	0
6:00 AM	33	0	26	4	0	3	0	0	0	0	0	0	0	0
7:00 AM	65	0	47	13	0	5	0	0	0	0	0	0	0	0
8:00 AM	108	1	70	34	0	3	0	0	0	0	0	0	0	0
9:00 AM	123	0	77	38	0	7	1	0	0	0	0	0	0	0
10:00 AM	130	1	88	31	0	8	1	0	1	0	0	0	0	0
11:00 AM	148	1	97	40	0	9	0	0	0	1	0	0	0	0
12:00 PM	145	0	90	43	0	11	1	0	0	0	0	0	0	0
1:00 PM	149	0	98	45	0	6	0	0	0	0	0	0	0	0
2:00 PM	188	0	120	56	0	9	2	0	1	0	0	0	0	0
3:00 PM	190	1	127	45	0	16	1	0	0	0	0	0	0	0
4:00 PM	261	1	176	70	1	13	0	0	0	0	0	0	0	0
5:00 PM	265	0	170	82	0	13	0	0	0	0	0	0	0	0
6:00 PM	199	2	121	67	0	8	0	0	1	0	0	0	0	0
7:00 PM	121	1	83	32	0	5	0	0	0	0	0	0	0	0
8:00 PM	99	0	70	26	0	3	0	0	0	0	0	0	0	0
9:00 PM	101	1	85	13	0	2	0	0	0	0	0	0	0	0
10:00 PM	38	0	34	3	0	1	0	0	0	0	0	0	0	0
11:00 PM	15	0	10	5	0	0	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	206	1	143	51	0	11	0	0	0	0	0	0	0	0
3:00 PM - 6:00 PM	716	2	473	197	1	42	1	0	0	0	0	0	0	0
6:00 AM - 7:00 PM	2004	7	1307	568	1	111	6	0	3	1	0	0	0	0
12:00 AM - 12:00 AM	2404	10	1606	655	1	122	6	0	3	1	0	0	0	0
Percent	*100%*	*0.4%*	*66.8%*	*27.2%*	*0.0%*	*5.1%*	*0.2%*	*0.0%*	*0.1%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

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Site Description: BURGESS RD E.O. HIGH MEADOWS DR
Site Number: 3
Start Date: 7/19/2023
End Date: 7/19/2023

Vehicle Classification Report (Westbound - 07/19/2023)

Wednesday		Westbound												
		Classes												
	Total	1	2	3	4	5	6	7	8	9	10	11	12	13
7/19/23														
12:00 AM	5	0	3	1	0	1	0	0	0	0	0	0	0	0
1:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0
2:00 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	16	0	12	4	0	0	0	0	0	0	0	0	0	0
5:00 AM	39	0	29	6	0	4	0	0	0	0	0	0	0	0
6:00 AM	139	1	92	34	0	11	1	0	0	0	0	0	0	0
7:00 AM	234	0	164	50	0	19	1	0	0	0	0	0	0	0
8:00 AM	239	1	174	51	1	12	0	0	0	0	0	0	0	0
9:00 AM	204	2	143	40	0	18	0	0	0	0	0	0	1	0
10:00 AM	157	1	116	33	0	5	2	0	0	0	0	0	0	0
11:00 AM	161	0	124	27	0	8	0	0	0	2	0	0	0	0
12:00 PM	162	2	103	49	0	6	1	0	1	0	0	0	0	0
1:00 PM	145	1	103	34	0	6	0	0	0	1	0	0	0	0
2:00 PM	110	0	74	24	0	12	0	0	0	0	0	0	0	0
3:00 PM	154	0	117	27	0	7	3	0	0	0	0	0	0	0
4:00 PM	112	1	80	24	0	5	2	0	0	0	0	0	0	0
5:00 PM	138	0	58	59	0	21	0	0	0	0	0	0	0	0
6:00 PM	107	0	14	67	0	25	1	0	0	0	0	0	0	0
7:00 PM	67	1	10	40	0	15	0	0	1	0	0	0	0	0
8:00 PM	41	0	7	28	0	6	0	0	0	0	0	0	0	0
9:00 PM	33	1	15	13	0	4	0	0	0	0	0	0	0	0
10:00 PM	17	0	9	8	0	0	0	0	0	0	0	0	0	0
11:00 PM	5	0	3	1	0	1	0	0	0	0	0	0	0	0
6:00 AM - 9:00 AM	612	2	430	135	1	42	2	0	0	0	0	0	0	0
3:00 PM - 6:00 PM	404	1	255	110	0	33	5	0	0	0	0	0	0	0
6:00 AM - 7:00 PM	2062	9	1362	519	1	155	11	0	1	3	0	0	1	0
12:00 AM - 12:00 AM	2287	11	1452	620	1	186	11	0	2	3	0	0	1	0
Percent	*0%*	-	-	-	-	-	-	-	-	-	-	-	-	-

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Sustainable Traffic Solutions

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MILAM RD / BURGESS RD
APR 16, 2024

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound					Pedestrian Crossing			
Interval Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	North	South	East	West
6:00	0	0	3	2	0	0	6	0	0	0	0	0	0	19	0	4	34	0	0	0	0
6:15	0	0	5	6	0	0	14	0	0	0	0	0	0	29	0	2	56	0	0	0	0
6:30	0	0	5	1	0	0	11	0	0	0	0	0	0	41	0	7	65	0	0	0	0
6:45	0	0	8	10	0	1	25	0	0	0	0	0	0	57	0	3	104	0	0	0	0
7:00	0	0	7	14	0	5	25	0	0	0	0	0	0	61	0	6	118	0	0	0	0
7:15	0	0	18	17	0	4	37	0	0	0	0	0	0	75	0	1	152	0	0	0	0
7:30	0	0	19	31	0	7	36	0	0	0	0	0	0	68	0	7	168	0	0	0	0
7:45	0	0	26	33	0	3	41	0	0	0	0	0	0	71	0	12	186	0	0	0	0
8:00	0	0	20	28	0	6	31	0	0	0	0	0	0	64	0	4	153	0	0	0	0
8:15	0	0	17	40	0	4	22	0	0	0	0	0	0	47	0	3	133	0	0	0	0
8:30	0	0	16	50	0	5	25	0	0	0	0	0	0	62	0	6	164	0	0	0	0
8:45	0	0	16	50	0	5	25	0	0	0	0	0	0	62	0	6	164	0	0	0	0
9:00	0	0	15	23	0	3	13	0	0	0	0	0	0	44	0	7	105	0	0	0	0
9:15	0	0	15	23	0	3	13	0	0	0	0	0	0	44	0	7	105	0	0	0	0
9:30	0	0	13	24	0	1	20	0	0	0	0	0	0	47	0	3	108	0	0	0	0
9:45	0	0	12	23	0	3	26	1	0	0	0	0	0	30	0	6	101	0	0	0	0
10:00	0	0	12	23	0	3	26	1	0	0	0	0	0	30	0	6	101	0	0	0	0
10:15	0	0	11	27	0	4	21	0	0	0	0	1	0	28	0	3	95	0	0	0	0
10:30	0	0	16	24	0	3	14	0	0	0	0	0	0	47	0	2	106	0	0	0	0
10:45	0	0	18	27	0	2	21	0	0	0	1	0	0	50	0	5	124	0	0	0	0
11:00	0	0	18	27	0	2	21	0	0	0	1	0	0	50	0	5	124	0	0	0	0
11:15	0	0	22	53	0	4	28	0	0	0	0	0	0	29	0	4	140	0	0	0	0
11:30	0	0	22	53	0	4	28	0	0	0	0	0	0	29	0	4	140	0	0	0	0
11:45	0	0	16	31	0	5	18	0	0	0	0	0	0	29	0	4	103	0	0	0	0
12:00	0	0	22	31	0	7	16	0	0	0	0	0	0	32	0	8	116	0	0	0	0
12:15	0	0	22	31	0	7	16	0	0	0	0	0	0	32	0	8	116	0	0	0	0
12:30	0	1	22	34	0	3	21	0	0	0	0	0	0	20	0	8	109	0	0	0	0
12:45	0	0	15	29	0	6	18	0	0	0	0	0	0	26	0	2	96	0	0	0	0
13:00	0	0	15	29	0	6	18	0	0	0	0	0	0	26	0	2	96	0	0	0	0
13:15	0	1	13	37	0	6	21	0	0	0	0	0	0	27	0	3	108	0	0	0	0
13:30	0	0	13	29	0	6	16	0	0	1	0	0	0	39	0	3	107	0	0	0	0
13:45	0	0	15	35	0	4	17	0	0	0	0	0	0	23	0	2	96	0	0	0	0
14:00	0	0	19	42	0	4	18	0	0	0	0	0	0	30	0	4	117	0	0	0	0
14:15	0	0	20	41	0	4	18	0	0	0	0	0	0	32	0	5	120	0	0	0	0
14:30	0	0	13	38	0	8	13	0	0	0	0	0	0	35	0	5	112	0	0	0	0
14:45	0	0	16	35	0	1	28	0	0	0	0	0	0	41	0	2	123	0	0	0	0
15:00	0	0	17	49	0	9	21	0	0	0	0	0	0	30	0	6	132	0	0	0	0
15:15	0	0	29	56	0	6	22	0	0	0	0	0	0	50	0	8	171	0	0	0	0
15:30	0	0	30	69	0	9	16	0	0	0	0	0	0	60	0	8	192	0	0	0	0
15:45	0	0	30	49	0	8	24	0	0	0	0	0	0	37	0	5	153	0	0	0	0

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MILAM RD / BURGESS RD
APR 16, 2024

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound					Pedestrian Crossing			
Interval Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	North	South	East	West
16:00	0	0	31	81	0	17	26	0	0	0	0	0	0	44	0	3	202	0	0	0	0
16:15	0	0	44	61	0	6	34	0	0	0	0	0	0	31	0	6	182	0	0	0	0
16:30	0	0	33	76	0	7	26	0	0	0	1	0	1	35	0	1	180	0	0	0	0
16:45	0	0	25	67	0	5	21	0	0	0	0	0	0	37	1	3	159	0	0	0	0
17:00	0	0	36	65	0	6	20	0	0	0	0	0	0	29	0	4	160	0	0	0	0
17:15	0	0	31	76	0	7	39	0	0	0	0	0	0	43	0	1	197	0	0	0	0
17:30	0	0	47	69	0	8	16	0	0	0	0	0	0	37	0	6	183	0	0	0	0
17:45	0	0	30	50	0	6	15	0	0	0	0	0	0	38	0	1	140	0	0	0	0
Count Total	0	2	938	1819	0	233	1047	2	0	1	3	1	1	1947	1	221	6216	0	0	0	0
% Trucks	0%	0%	1%	1%	0%	3%	1%	0%	0%	0%	0%	0%	0%	1%	0%	1%	1%	---	---	---	---

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound					Pedestrian Crossing			
Hour by Hour	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total	North	South	East	West
6:00	0	0	21	19	0	1	56	0	0	0	0	0	0	146	0	16	259	0	0	0	0
7:00	0	0	70	95	0	19	139	0	0	0	0	0	0	275	0	26	624	0	0	0	0
8:00	0	0	69	168	0	20	103	0	0	0	0	0	0	235	0	19	614	0	0	0	0
9:00	0	0	55	93	0	10	72	1	0	0	0	0	0	165	0	23	419	0	0	0	0
10:00	0	0	57	101	0	12	82	1	0	0	1	1	0	155	0	16	426	0	0	0	0
11:00	0	0	78	164	0	15	95	0	0	0	1	0	0	137	0	17	507	0	0	0	0
12:00	0	1	81	125	0	23	71	0	0	0	0	0	0	110	0	26	437	0	0	0	0
13:00	0	1	56	130	0	22	72	0	0	1	0	0	0	115	0	10	407	0	0	0	0
14:00	0	0	68	156	0	17	77	0	0	0	0	0	0	138	0	16	472	0	0	0	0
15:00	0	0	106	223	0	32	83	0	0	0	0	0	0	177	0	27	648	0	0	0	0
16:00	0	0	133	285	0	35	107	0	0	0	1	0	1	147	1	13	723	0	0	0	0
17:00	0	0	144	260	0	27	90	0	0	0	0	0	0	147	0	12	680	0	0	0	0
Count Total	0	2	938	1819	0	233	1047	2	0	1	3	1	1	1947	1	221	6216	0	0	0	0

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MILAM RD / BURGESS RD
APR 16, 2024

Passenger Vehicles

Interval Start Time	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
6:00	0	0	3	2	0	0	6	0	0	0	0	0	0	19	0	4	34
6:15	0	0	5	6	0	0	14	0	0	0	0	0	0	29	0	2	56
6:30	0	0	5	1	0	0	11	0	0	0	0	0	0	41	0	7	65
6:45	0	0	7	10	0	1	25	0	0	0	0	0	0	57	0	3	103
7:00	0	0	7	13	0	5	24	0	0	0	0	0	0	57	0	6	112
7:15	0	0	17	17	0	3	35	0	0	0	0	0	0	72	0	1	145
7:30	0	0	18	29	0	6	36	0	0	0	0	0	0	68	0	7	164
7:45	0	0	26	32	0	3	41	0	0	0	0	0	0	71	0	12	185
8:00	0	0	18	26	0	6	29	0	0	0	0	0	0	64	0	4	147
8:15	0	0	15	37	0	4	21	0	0	0	0	0	0	45	0	3	125
8:30	0	0	16	50	0	5	25	0	0	0	0	0	0	60	0	6	162
8:45	0	0	20	25	0	10	28	0	0	0	0	0	0	54	0	4	141
9:00	0	0	15	23	0	3	13	0	0	0	0	0	0	44	0	7	105
9:15	0	0	15	23	0	3	13	0	0	0	0	0	0	44	0	7	105
9:30	0	0	11	24	0	5	22	0	0	0	0	0	0	39	0	0	101
9:45	0	0	12	20	0	3	25	1	0	0	0	0	0	30	0	6	97
10:00	0	0	12	20	0	3	25	1	0	0	0	0	0	30	0	6	97
10:15	0	0	10	28	0	4	13	0	0	0	0	0	0	37	0	2	94
10:30	0	0	16	24	0	3	13	0	0	0	0	0	0	46	0	2	104
10:45	0	0	18	27	0	2	21	0	0	0	1	0	0	50	0	5	124
11:00	0	0	26	29	0	2	20	0	0	0	0	0	0	34	0	6	117
11:15	0	0	22	53	0	4	28	0	0	0	0	0	0	29	0	4	140
11:30	0	0	22	53	0	4	28	0	0	0	0	0	0	29	0	4	140
11:45	0	0	25	35	0	5	15	0	0	0	0	0	0	30	0	8	118
12:00	0	0	21	29	0	7	16	0	0	0	0	0	0	32	0	7	112
12:15	0	0	21	29	0	7	16	0	0	0	0	0	0	32	0	7	112
12:30	0	0	16	22	0	7	17	0	0	0	0	0	0	30	0	2	94
12:45	0	0	15	29	0	6	18	0	0	0	0	0	0	26	0	2	96
13:00	0	0	15	29	0	6	18	0	0	0	0	0	0	26	0	2	96
13:15	0	0	13	29	0	6	16	0	0	1	0	0	0	39	0	3	107
13:30	0	0	13	29	0	6	16	0	0	1	0	0	0	39	0	3	107
13:45	0	0	13	35	0	3	17	0	0	0	0	0	0	22	0	2	92
14:00	0	0	19	42	0	4	18	0	0	0	0	0	0	29	0	4	116
14:15	0	0	19	41	0	4	18	0	0	0	0	0	0	31	0	5	118
14:30	0	0	13	38	0	7	13	0	0	0	0	0	0	35	0	5	111
14:45	0	0	16	35	0	1	28	0	0	0	0	0	0	40	0	2	122
15:00	0	0	17	49	0	9	21	0	0	0	0	0	0	30	0	6	132
15:15	0	0	29	55	0	6	22	0	0	0	0	0	0	50	0	8	170
15:30	0	0	29	65	0	7	16	0	0	0	0	0	0	59	0	8	184
15:45	0	0	29	49	0	8	24	0	0	0	0	0	0	36	0	5	151

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MILAM RD / BURGESS RD
APR 16, 2024

Passenger Vehicles

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				
Interval Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
16:00	0	0	31	81	0	17	25	0	0	0	0	0	0	43	0	3	200
16:15	0	0	44	61	0	6	32	0	0	0	0	0	0	30	0	6	179
16:30	0	0	33	76	0	7	26	0	0	0	1	0	1	33	0	1	178
16:45	0	0	25	66	0	5	21	0	0	0	0	0	0	35	1	3	156
17:00	0	0	36	65	0	6	20	0	0	0	0	0	0	29	0	4	160
17:15	0	0	31	75	0	7	39	0	0	0	0	0	0	43	0	1	196
17:30	0	0	47	69	0	8	16	0	0	0	0	0	0	37	0	6	183
17:45	0	0	30	50	0	6	15	0	0	0	0	0	0	38	0	1	140
Count Total	0	0	936	1755	0	240	1019	2	0	2	2	0	1	1923	1	212	6093

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				
Hour by Hour	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
6:00	0	0	20	19	0	1	56	0	0	0	0	0	0	146	0	16	258
7:00	0	0	68	91	0	17	136	0	0	0	0	0	0	268	0	26	606
8:00	0	0	69	138	0	25	103	0	0	0	0	0	0	223	0	17	575
9:00	0	0	53	90	0	14	73	1	0	0	0	0	0	157	0	20	408
10:00	0	0	56	99	0	12	72	1	0	0	1	0	0	163	0	15	419
11:00	0	0	95	170	0	15	91	0	0	0	0	0	0	122	0	22	515
12:00	0	0	73	109	0	27	67	0	0	0	0	0	0	120	0	18	414
13:00	0	0	54	122	0	21	67	0	0	2	0	0	0	126	0	10	402
14:00	0	0	67	156	0	16	77	0	0	0	0	0	0	135	0	16	467
15:00	0	0	104	218	0	30	83	0	0	0	0	0	0	175	0	27	637
16:00	0	0	133	284	0	35	104	0	0	0	1	0	1	141	1	13	713
17:00	0	0	144	259	0	27	90	0	0	0	0	0	0	147	0	12	679
Count Total	0	0	936	1755	0	240	1019	2	0	2	2	0	1	1923	1	212	6093

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Trucks Less Than 40' Long

Interval Start Time	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:00	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	6
7:15	0	0	1	0	0	1	2	0	0	0	0	0	0	3	0	0	7
7:30	0	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	4
7:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00	0	0	2	2	0	0	2	0	0	0	0	0	0	0	0	0	6
8:15	0	0	2	2	0	0	1	0	0	0	0	0	0	2	0	0	7
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4
10:00	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
10:30	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	4
12:15	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	1	4
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	2	0	0	1	0	0	0	0	0	0	0	1	0	0	4
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
14:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
15:30	0	0	1	4	0	1	0	0	0	0	0	0	0	1	0	0	7
15:45	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2

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MILAM RD / BURGESS RD
APR 16, 2024

Trucks Less Than 40' Long

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				
Interval Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
16:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
16:15	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	3
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
16:45	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	13	26	0	5	12	0	0	0	0	0	0	23	0	3	82

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				
Hour by Hour	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
6:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:00	0	0	2	4	0	2	3	0	0	0	0	0	0	7	0	0	18
8:00	0	0	4	4	0	0	3	0	0	0	0	0	0	4	0	0	15
9:00	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4
10:00	0	0	0	3	0	0	2	0	0	0	0	0	0	1	0	1	7
11:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00	0	0	2	4	0	0	0	0	0	0	0	0	0	0	0	2	8
13:00	0	0	2	0	0	1	0	0	0	0	0	0	0	1	0	0	4
14:00	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4
15:00	0	0	2	5	0	1	0	0	0	0	0	0	0	2	0	0	10
16:00	0	0	0	1	0	0	3	0	0	0	0	0	0	5	0	0	9
17:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	13	26	0	5	12	0	0	0	0	0	0	23	0	3	82

Sustainable Traffic Solutions

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MILAM RD / BURGESS RD
APR 16, 2024

Trucks Greater Than 40' Long

Interval Start Time	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				Total
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Sustainable Traffic Solutions

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MILAM RD / BURGESS RD
APR 16, 2024

Trucks Greater Than 40' Long

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				
Interval Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	4

	Milam Road Northbound				Milam Road Southbound				Burgess Rpad Eastbound				Burgess Road Westbound				
Hour by Hour	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total
6:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
9:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	1	1	0	1	0	0	0	0	0	0	0	1	0	0	4

Appendix D

VISTRO Analysis Results

Year 2023 Traffic Volumes

Haven School TIS

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

Scenario 1 2023 AM
12/6/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Two-way stop	HCM 7th Edition	WB Left	0.425	15.0	C
2	Black Forest/Burgess	Signalized	HCM 7th Edition	NB Left	0.141	6.0	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: Milam/Burgess

Control Type:	Two-way stop	Delay (sec / veh):	15.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.425

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	67	82	31	124	189	27
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]	67	82	31	124	189	27
Peak Hour Factor	0.7800	0.7800	0.7900	0.7900	0.6800	0.6800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	26	10	39	69	10
Total Analysis Volume [veh/h]	86	105	39	157	278	40
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	0.03	0.00	0.43	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.43	0.00	15.04	13.23
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.07	0.07	2.49	2.49
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.66	1.66	62.18	62.18
d_A, Approach Delay [s/veh]	0.00		1.48		14.81	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.09					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	6.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.141

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	37	75	30	20	78	10	13	64	21	29	109	35
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	15	0	0	5	0	0	11	0	0	18
Total Hourly Volume [veh/h]	37	75	15	20	78	5	13	64	10	29	109	17
Peak Hour Factor	0.6600	0.6600	0.6600	0.8400	0.8400	0.8400	0.9800	0.9800	0.9800	0.7300	0.7300	0.7300
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]	14	28	6	6	23	1	3	16	3	10	37	6
Total Analysis Volume [veh/h]	56	114	23	24	93	6	13	65	10	40	149	23
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	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

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Cycle Length [s]	23	23	23	23	23	23	23	23	23	23	23	23
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	7	7	7	7	7	7	7	7	7	7	7
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.32	0.32	0.33	0.33	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.04	0.06	0.01	0.02	0.05	0.00	0.01	0.03	0.01	0.03	0.08	0.01
s, saturation flow rate [veh/h]	1296	1870	1589	1252	1870	1589	1213	1870	1589	1324	1870	1589
c, Capacity [veh/h]	582	594	505	562	594	505	555	621	528	623	621	528
d1, Uniform Delay [s]	7.52	5.66	5.39	7.50	5.59	5.34	7.43	5.28	5.13	6.94	5.53	5.17
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.07	0.16	0.04	0.03	0.12	0.01	0.02	0.07	0.01	0.04	0.20	0.03
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.19	0.05	0.04	0.16	0.01	0.02	0.10	0.02	0.06	0.24	0.04
d, Delay for Lane Group [s/veh]	7.59	5.82	5.43	7.53	5.71	5.34	7.45	5.35	5.14	6.99	5.73	5.20
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.14	0.20	0.04	0.06	0.16	0.01	0.03	0.10	0.02	0.09	0.25	0.04
50th-Percentile Queue Length [ft/ln]	3.40	4.94	0.96	1.45	3.97	0.25	0.78	2.55	0.39	2.21	6.22	0.90
95th-Percentile Queue Length [veh/ln]	0.24	0.36	0.07	0.10	0.29	0.02	0.06	0.18	0.03	0.16	0.45	0.06
95th-Percentile Queue Length [ft/ln]	6.11	8.90	1.72	2.62	7.14	0.44	1.41	4.58	0.69	3.97	11.19	1.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.59	5.82	5.43	7.53	5.71	5.34	7.45	5.35	5.14	6.99	5.73	5.20
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	6.28			6.05			5.64			5.91		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.02											
Intersection LOS	A											
Intersection V/C	0.141											

Emissions

Vehicle Miles Traveled [mph]	5.89	11.98	2.42	2.65	10.26	0.66	19.05	95.24	14.65	4.80	17.89	2.76
Stops [stops/h]	21.60	31.44	6.08	9.25	25.24	1.56	4.97	16.20	2.45	14.03	39.54	5.70
Fuel consumption [US gal/h]	0.45	0.80	0.16	0.20	0.67	0.04	0.83	4.08	0.63	0.33	1.13	0.17
CO [g/h]	31.32	56.05	11.08	13.76	46.84	2.97	58.11	285.26	43.84	23.21	78.90	11.85
NOx [g/h]	6.09	10.91	2.16	2.68	9.11	0.58	11.31	55.50	8.53	4.52	15.35	2.31
VOC [g/h]	7.26	12.99	2.57	3.19	10.86	0.69	13.47	66.11	10.16	5.38	18.28	2.75

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3534	3534	3534	3534
d_b, Bicycle Delay [s]	6.66	6.66	6.66	6.66
l_b,int, Bicycle LOS Score for Intersection	1.903	1.771	1.723	1.939
Bicycle LOS	A	A	A	A

Sequence

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

Haven School TIS

Vistro File: C:\...\pm.vistro
Report File: C:\...\2023 PM.pdf

Scenario 1 2023 PM
12/6/2023

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Two-way stop	HCM 7th Edition	WB Left	0.217	12.4	B
2	Black Forest/Burgess	Signalized	HCM 7th Edition	SB Left	0.150	5.9	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: Milam/Burgess

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):	0.217

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	130	146	22	119	105	23
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]	130	146	22	119	105	23
Peak Hour Factor	0.8800	0.8800	0.8200	0.8200	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	41	7	36	35	8
Total Analysis Volume [veh/h]	148	166	27	145	138	30
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	0.02	0.00	0.22	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	7.54	0.00	12.43	10.78
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	0.99	0.99
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.14	1.14	24.64	24.64
d_A, Approach Delay [s/veh]	0.00		1.18		12.14	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.43					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	5.9
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.150

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	20	106	25	28	105	14	16	137	27	23	77	25
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	13	0	0	7	0	0	14	0	0	13
Total Hourly Volume [veh/h]	20	106	12	28	105	7	16	137	13	23	77	12
Peak Hour Factor	0.9000	0.9000	0.9000	0.8500	0.8500	0.8500	0.8700	0.8700	0.8700	0.6540	0.6540	0.6540
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	29	3	8	31	2	5	39	4	9	29	5
Total Analysis Volume [veh/h]	22	118	13	33	124	8	18	157	15	35	118	18
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	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

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Cycle Length [s]	21	21	21	21	21	21	21	21	21	21	21	21
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	6	6	6	6	6	6	7	7	7	7	7	7
g / C, Green / Cycle	0.30	0.30	0.30	0.30	0.30	0.30	0.32	0.32	0.32	0.32	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.01	0.03	0.07	0.01	0.01	0.08	0.01	0.03	0.06	0.01
s, saturation flow rate [veh/h]	1258	1870	1589	1259	1870	1589	1253	1870	1589	1213	1870	1589
c, Capacity [veh/h]	546	561	477	550	561	477	581	606	515	553	606	515
d1, Uniform Delay [s]	7.54	5.57	5.26	7.56	5.59	5.24	7.02	5.31	4.91	7.42	5.19	4.92
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	0.18	0.02	0.05	0.20	0.01	0.02	0.22	0.02	0.05	0.16	0.03
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.04	0.21	0.03	0.06	0.22	0.02	0.03	0.26	0.03	0.06	0.19	0.03
d, Delay for Lane Group [s/veh]	7.57	5.75	5.28	7.61	5.78	5.26	7.04	5.53	4.93	7.47	5.34	4.94
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.05	0.18	0.02	0.08	0.19	0.01	0.04	0.22	0.02	0.08	0.16	0.02
50th-Percentile Queue Length [ft/ln]	1.25	4.60	0.48	1.88	4.86	0.29	0.94	5.61	0.49	1.95	4.08	0.59
95th-Percentile Queue Length [veh/ln]	0.09	0.33	0.03	0.14	0.35	0.02	0.07	0.40	0.04	0.14	0.29	0.04
95th-Percentile Queue Length [ft/ln]	2.25	8.29	0.86	3.38	8.75	0.53	1.69	10.10	0.89	3.51	7.35	1.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.57	5.75	5.28	7.61	5.78	5.26	7.04	5.53	4.93	7.47	5.34	4.94
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	5.97			6.12			5.63			5.74		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	5.85											
Intersection LOS	A											
Intersection V/C	0.150											

Emissions

Vehicle Miles Traveled [mph]	2.31	12.40	1.37	3.64	13.68	0.88	26.37	230.04	21.98	4.20	14.17	2.16
Stops [stops/h]	8.51	31.37	3.27	12.80	33.13	2.00	6.38	38.26	3.36	13.28	27.84	4.05
Fuel consumption [US gal/h]	0.18	0.82	0.09	0.27	0.89	0.06	1.15	9.86	0.94	0.30	0.87	0.13
CO [g/h]	12.31	57.46	6.17	18.99	62.37	3.91	80.16	689.07	65.59	20.94	60.48	9.05
NOx [g/h]	2.40	11.18	1.20	3.70	12.14	0.76	15.60	134.07	12.76	4.07	11.77	1.76
VOC [g/h]	2.85	13.32	1.43	4.40	14.46	0.91	18.58	159.70	15.20	4.85	14.02	2.10

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3786	3786	3786	3786
d_b, Bicycle Delay [s]	8.42	8.42	8.42	8.42
l_b,int, Bicycle LOS Score for Intersection	1.834	1.843	1.896	1.863
Bicycle LOS	A	A	A	A

Sequence

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

Year 2026 Traffic Volume Scenarios

Haven School TIS

Vistro File: C:\...\AM.vistro
Report File: C:\...\2026 Back AM.pdf

Scenario 2 2026 Back AM
5/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Two-way stop	HCM 7th Edition	WB Left	0.522	17.9	C
2	Black Forest/Burgess	Signalized	HCM 7th Edition	EB Left	0.156	6.2	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: Milam/Burgess

Control Type:	Two-way stop	Delay (sec / veh):	17.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.522

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	67	82	31	124	189	27
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	1.0600	1.0600	1.1200	1.1200	1.1700	1.1700
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]	71	87	35	139	221	32
Peak Hour Factor	0.7800	0.7800	0.7900	0.7900	0.6800	0.6800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	28	11	44	81	12
Total Analysis Volume [veh/h]	91	112	44	176	325	47
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	0.03	0.00	0.52	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	7.44	0.00	17.88	15.82
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.08	0.08	3.62	3.62
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.88	1.88	90.46	90.46
d_A, Approach Delay [s/veh]	0.00		1.49		17.62	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	8.66					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	6.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.156

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	37	75	30	20	78	10	13	64	21	29	109	35
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	1.1700	1.1700	1.1700	1.0900	1.0900	1.0900	1.1700	1.1700	1.1700	1.0600	1.0600	1.0600
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	18	0	0	6	0	0	13	0	0	19
Total Hourly Volume [veh/h]	43	88	17	22	85	5	15	75	12	31	116	18
Peak Hour Factor	0.6600	0.6600	0.6600	0.8400	0.8400	0.8400	0.9800	0.9800	0.9800	0.7300	0.7300	0.7300
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]	16	33	6	7	25	1	4	19	3	11	40	6
Total Analysis Volume [veh/h]	65	133	26	26	101	6	15	77	12	42	159	25
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	24	24	24	24	24	24	24	24	24	24	24	24
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	8	8	8	8	8	8	8	8	8
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.05	0.07	0.02	0.02	0.05	0.00	0.01	0.04	0.01	0.03	0.09	0.02
s, saturation flow rate [veh/h]	1286	1870	1589	1227	1870	1589	1200	1870	1589	1308	1870	1589
c, Capacity [veh/h]	585	620	527	555	620	527	538	622	529	603	622	529
d1, Uniform Delay [s]	7.64	5.73	5.41	7.67	5.62	5.34	7.79	5.53	5.34	7.29	5.79	5.39
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.17	0.04	0.03	0.12	0.01	0.02	0.09	0.02	0.05	0.21	0.04
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.21	0.05	0.05	0.16	0.01	0.03	0.12	0.02	0.07	0.26	0.05
d, Delay for Lane Group [s/veh]	7.72	5.90	5.45	7.70	5.75	5.35	7.81	5.62	5.36	7.34	6.01	5.42
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.17	0.25	0.05	0.07	0.18	0.01	0.04	0.14	0.02	0.10	0.30	0.04
50th-Percentile Queue Length [ft/ln]	4.20	6.16	1.14	1.69	4.57	0.26	0.99	3.40	0.52	2.57	7.47	1.09
95th-Percentile Queue Length [veh/ln]	0.30	0.44	0.08	0.12	0.33	0.02	0.07	0.25	0.04	0.19	0.54	0.08
95th-Percentile Queue Length [ft/ln]	7.56	11.08	2.05	3.04	8.22	0.47	1.79	6.13	0.93	4.63	13.44	1.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.72	5.90	5.45	7.70	5.75	5.35	7.81	5.62	5.36	7.34	6.01	5.42
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	6.38			6.11			5.90			6.19		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.19											
Intersection LOS	A											
Intersection V/C	0.156											

Emissions

Vehicle Miles Traveled [mph]	6.83	13.98	2.73	2.87	11.15	0.66	21.98	112.82	17.58	5.04	19.09	3.00
Stops [stops/h]	25.57	37.51	6.95	10.29	27.82	1.58	6.05	20.74	3.16	15.66	45.50	6.64
Fuel consumption [US gal/h]	0.52	0.94	0.18	0.22	0.73	0.04	0.96	4.85	0.75	0.36	1.23	0.19
CO [g/h]	36.68	65.87	12.56	15.08	51.07	2.97	67.24	338.81	52.73	24.94	86.09	13.13
NOx [g/h]	7.14	12.82	2.44	2.93	9.94	0.58	13.08	65.92	10.26	4.85	16.75	2.55
VOC [g/h]	8.50	15.27	2.91	3.49	11.84	0.69	15.58	78.52	12.22	5.78	19.95	3.04

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3384	3384	3384	3384
d_b, Bicycle Delay [s]	5.66	5.66	5.66	5.66
l_b,int, Bicycle LOS Score for Intersection	1.959	1.789	1.753	1.964
Bicycle LOS	A	A	A	A

Sequence

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

Haven School TIS

Vistro File: C:\...\pm.vistro
Report File: C:\...\2026 Back PM.pdf

Scenario 2 2026 Back PM
5/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Two-way stop	HCM 7th Edition	WB Left	0.266	13.4	B
2	Black Forest/Burgess	Signalized	HCM 7th Edition	SB Left	0.172	6.1	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: Milam/Burgess

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.266

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	130	146	22	119	105	23
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	1.0600	1.0600	1.1200	1.1200	1.1700	1.1700
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]	138	155	25	133	123	27
Peak Hour Factor	0.8800	0.8800	0.8200	0.8200	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	44	8	41	40	9
Total Analysis Volume [veh/h]	157	176	30	162	162	36
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	0.02	0.00	0.27	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.56	0.00	13.37	11.50
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.05	0.05	1.30	1.30
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.27	1.27	32.44	32.44
d_A, Approach Delay [s/veh]	0.00		1.18		13.03	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.88					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	6.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.172

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	20	106	25	28	105	14	16	137	27	23	77	25
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	1.1700	1.1700	1.1700	1.0900	1.0900	1.0900	1.1700	1.1700	1.1700	1.0600	1.0600	1.0600
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	15	0	0	8	0	0	16	0	0	14
Total Hourly Volume [veh/h]	23	124	14	31	114	7	19	160	16	24	82	13
Peak Hour Factor	0.9000	0.9000	0.9000	0.8500	0.8500	0.8500	0.8700	0.8700	0.8700	0.6540	0.6540	0.6540
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	34	4	9	34	2	5	46	5	9	31	5
Total Analysis Volume [veh/h]	26	138	16	36	134	8	22	184	18	37	125	20
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	23	23	23	23	23	23	23	23	23	23	23	23
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	7	7	7	7	7	8	8	8	8	8	8
g / C, Green / Cycle	0.31	0.31	0.31	0.31	0.31	0.31	0.34	0.34	0.34	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.01	0.03	0.07	0.01	0.02	0.10	0.01	0.03	0.07	0.01
s, saturation flow rate [veh/h]	1246	1870	1589	1233	1870	1589	1243	1870	1589	1180	1870	1589
c, Capacity [veh/h]	538	575	489	534	575	489	586	638	542	542	638	542
d1, Uniform Delay [s]	7.85	5.89	5.51	7.95	5.88	5.48	7.10	5.48	5.00	7.68	5.29	5.00
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.21	0.03	0.05	0.21	0.01	0.03	0.25	0.02	0.05	0.15	0.03
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.05	0.24	0.03	0.07	0.23	0.02	0.04	0.29	0.03	0.07	0.20	0.04
d, Delay for Lane Group [s/veh]	7.89	6.11	5.54	8.01	6.08	5.50	7.13	5.73	5.02	7.73	5.44	5.03
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.07	0.25	0.03	0.09	0.24	0.01	0.05	0.30	0.03	0.09	0.19	0.03
50th-Percentile Queue Length [ft/ln]	1.65	6.32	0.68	2.32	6.11	0.34	1.25	7.49	0.66	2.30	4.85	0.74
95th-Percentile Queue Length [veh/ln]	0.12	0.45	0.05	0.17	0.44	0.02	0.09	0.54	0.05	0.17	0.35	0.05
95th-Percentile Queue Length [ft/ln]	2.98	11.37	1.23	4.18	11.01	0.61	2.24	13.47	1.19	4.13	8.74	1.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.89	6.11	5.54	8.01	6.08	5.50	7.13	5.73	5.02	7.73	5.44	5.03
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	6.31			6.45			5.81			5.86		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.09											
Intersection LOS	A											
Intersection V/C	0.172											

Emissions

Vehicle Miles Traveled [mph]	2.73	14.50	1.68	3.97	14.79	0.88	32.23	269.60	26.37	4.44	15.01	2.40
Stops [stops/h]	10.56	40.33	4.37	14.84	39.03	2.17	7.95	47.79	4.23	14.66	30.98	4.71
Fuel consumption [US gal/h]	0.21	0.99	0.11	0.30	0.99	0.06	1.40	11.58	1.13	0.32	0.93	0.15
CO [g/h]	14.86	69.30	7.79	21.26	69.22	4.00	98.06	809.22	78.81	22.51	64.82	10.16
NOx [g/h]	2.89	13.48	1.52	4.14	13.47	0.78	19.08	157.45	15.33	4.38	12.61	1.98
VOC [g/h]	3.44	16.06	1.80	4.93	16.04	0.93	22.73	187.55	18.27	5.22	15.02	2.35

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3547	3547	3547	3547
d_b, Bicycle Delay [s]	6.74	6.74	6.74	6.74
l_b,int, Bicycle LOS Score for Intersection	1.881	1.867	1.956	1.883
Bicycle LOS	A	A	A	A

Sequence

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

Haven School TIS

Vistro File: C:\...\AM.vistro
Report File: C:\...\2026 Total AM.pdf

Scenario 3 2026 Total AM
5/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Two-way stop	HCM 7th Edition	WB Left	0.575	19.9	C
2	Black Forest/Burgess	Signalized	HCM 7th Edition	EB Left	0.160	6.3	A
3	Burgess/School Access	Two-way stop	HCM 7th Edition	SB Left	0.041	13.8	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: Milam/Burgess

Control Type:	Two-way stop	Delay (sec / veh):	19.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.575

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	67	82	31	124	189	27
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	1.0600	1.0600	1.1200	1.1200	1.1700	1.1700
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	5	0	16	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]	71	115	40	139	237	35
Peak Hour Factor	0.7800	0.7800	0.7900	0.7900	0.6800	0.6800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	37	13	44	87	13
Total Analysis Volume [veh/h]	91	147	51	176	349	51
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	0.03	0.00	0.57	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	7.45	0.00	19.94	17.74
Movement LOS	A	A	A	A	C	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.09	0.09	4.40	4.40
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.19	2.19	109.94	109.94
d_A, Approach Delay [s/veh]	0.00		1.67		19.66	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	9.53					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	6.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.160

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	37	75	30	20	78	10	13	64	21	29	109	35
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	1.1700	1.1700	1.1700	1.0900	1.0900	1.0900	1.1700	1.1700	1.1700	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	0	0	3	6	0	5	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	18	0	0	6	0	0	16	0	0	19
Total Hourly Volume [veh/h]	52	88	17	22	85	5	15	78	15	31	121	18
Peak Hour Factor	0.6600	0.6600	0.6600	0.8400	0.8400	0.8400	0.9800	0.9800	0.9800	0.7300	0.7300	0.7300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	33	6	7	25	1	4	20	4	11	41	6
Total Analysis Volume [veh/h]	79	133	26	26	101	6	15	80	15	42	166	25
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	24	24	24	24	24	24	24	24	24	24	24	24
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	8	8	8	8	8	8	8	8	8	8	8	8
g / C, Green / Cycle	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.06	0.07	0.02	0.02	0.05	0.00	0.01	0.04	0.01	0.03	0.09	0.02
s, saturation flow rate [veh/h]	1286	1870	1589	1227	1870	1589	1192	1870	1589	1301	1870	1589
c, Capacity [veh/h]	587	628	534	558	628	534	529	623	530	597	623	530
d1, Uniform Delay [s]	7.74	5.74	5.42	7.67	5.64	5.35	7.95	5.62	5.43	7.40	5.90	5.46
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	0.17	0.04	0.03	0.12	0.01	0.02	0.09	0.02	0.05	0.23	0.04
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.21	0.05	0.05	0.16	0.01	0.03	0.13	0.03	0.07	0.27	0.05
d, Delay for Lane Group [s/veh]	7.84	5.91	5.46	7.71	5.75	5.36	7.97	5.71	5.45	7.45	6.13	5.50
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.21	0.25	0.05	0.07	0.19	0.01	0.04	0.15	0.03	0.11	0.33	0.05
50th-Percentile Queue Length [ft/ln]	5.26	6.29	1.17	1.72	4.67	0.26	1.03	3.69	0.67	2.66	8.15	1.13
95th-Percentile Queue Length [veh/ln]	0.38	0.45	0.08	0.12	0.34	0.02	0.07	0.27	0.05	0.19	0.59	0.08
95th-Percentile Queue Length [ft/ln]	9.47	11.33	2.10	3.09	8.40	0.48	1.86	6.64	1.21	4.79	14.67	2.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.84	5.91	5.46	7.71	5.75	5.36	7.97	5.71	5.45	7.45	6.13	5.50
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	6.50			6.12			5.98			6.30		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.28											
Intersection LOS	A											
Intersection V/C	0.160											

Emissions

Vehicle Miles Traveled [mph]	8.30	13.98	2.73	2.87	11.15	0.66	21.98	117.22	21.98	5.04	19.93	3.00
Stops [stops/h]	31.53	37.70	6.99	10.30	27.97	1.59	6.17	22.09	4.04	15.95	48.84	6.79
Fuel consumption [US gal/h]	0.64	0.94	0.18	0.22	0.73	0.04	0.96	5.04	0.94	0.36	1.30	0.19
CO [g/h]	44.88	65.96	12.58	15.09	51.14	2.98	67.33	352.32	65.97	25.12	90.68	13.22
NOx [g/h]	8.73	12.83	2.45	2.94	9.95	0.58	13.10	68.55	12.83	4.89	17.64	2.57
VOC [g/h]	10.40	15.29	2.92	3.50	11.85	0.69	15.60	81.65	15.29	5.82	21.01	3.06

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3329	3329	3329	3329
d_b, Bicycle Delay [s]	5.30	5.30	5.30	5.30
l_b,int, Bicycle LOS Score for Intersection	1.982	1.789	1.768	1.975
Bicycle LOS	A	A	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 3: Burgess/School Access

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	Haven School Access		Burgess Road		Burgess Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	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	Haven School Access		Burgess Road		Burgess Road	
Base Volume Input [veh/h]	0	0	0	113	216	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	1.1700	1.1700	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	19	33	0	0	14
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]	9	19	33	132	253	14
Peak Hour Factor	0.5000	0.5000	0.5000	0.8500	0.8500	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	10	17	39	74	7
Total Analysis Volume [veh/h]	18	38	66	155	298	28
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	0.04	0.05	0.05	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.80	10.56	8.08	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.17	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.67	7.67	4.23	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.60		2.41		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.96					
Intersection LOS	B					

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Scenario 3 2026 Total PM
5/29/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Two-way stop	HCM 7th Edition	WB Left	0.304	14.0	B
2	Black Forest/Burgess	Signalized	HCM 7th Edition	SB Left	0.174	6.1	A
3	Burgess/School Access	Two-way stop	HCM 7th Edition	SB Left	0.036	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: Milam/Burgess

Control Type:	Two-way stop	Delay (sec / veh):	14.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.304

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	130	146	22	119	105	23
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	1.0600	1.0600	1.1200	1.1200	1.1700	1.1700
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	2	0	16	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]	138	168	27	133	139	30
Peak Hour Factor	0.8800	0.8800	0.8200	0.8200	0.7600	0.7600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	48	8	41	46	10
Total Analysis Volume [veh/h]	157	191	33	162	183	39
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	0.02	0.00	0.30	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	7.57	0.00	13.95	12.03
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.06	0.06	1.55	1.55
95th-Percentile Queue Length [ft/ln]	0.00	0.00	1.40	1.40	38.83	38.83
d_A, Approach Delay [s/veh]	0.00		1.28		13.62	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	4.28					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	6.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.174

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	20	106	25	28	105	14	16	137	27	23	77	25
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	1.1700	1.1700	1.1700	1.0900	1.0900	1.0900	1.1700	1.1700	1.1700	1.0600	1.0600	1.0600
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	0	0	3	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
Right Turn on Red Volume [veh/h]	0	0	15	0	0	8	0	0	19	0	0	14
Total Hourly Volume [veh/h]	27	124	14	31	114	7	19	163	19	24	84	13
Peak Hour Factor	0.9000	0.9000	0.9000	0.8500	0.8500	0.8500	0.8700	0.8700	0.8700	0.6540	0.6540	0.6540
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	34	4	9	34	2	5	47	5	9	32	5
Total Analysis Volume [veh/h]	30	138	16	36	134	8	22	187	22	37	128	20
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	23	23	23	23	23	23	23	23	23	23	23	23
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	7	7	7	7	7	7	8	8	8	8	8	8
g / C, Green / Cycle	0.31	0.31	0.31	0.31	0.31	0.31	0.34	0.34	0.34	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.02	0.07	0.01	0.03	0.07	0.01	0.02	0.10	0.01	0.03	0.07	0.01
s, saturation flow rate [veh/h]	1246	1870	1589	1233	1870	1589	1239	1870	1589	1173	1870	1589
c, Capacity [veh/h]	538	578	491	533	578	491	584	642	545	540	642	545
d1, Uniform Delay [s]	7.92	5.93	5.55	7.99	5.91	5.52	7.15	5.51	5.03	7.73	5.32	5.02
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.04	0.21	0.03	0.05	0.20	0.01	0.03	0.25	0.03	0.05	0.15	0.03
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.24	0.03	0.07	0.23	0.02	0.04	0.29	0.04	0.07	0.20	0.04
d, Delay for Lane Group [s/veh]	7.96	6.14	5.57	8.05	6.12	5.53	7.17	5.76	5.06	7.78	5.48	5.05
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.08	0.26	0.03	0.09	0.25	0.01	0.05	0.31	0.03	0.09	0.20	0.03
50th-Percentile Queue Length [ft/ln]	1.95	6.45	0.70	2.36	6.25	0.35	1.27	7.78	0.83	2.34	5.09	0.75
95th-Percentile Queue Length [veh/ln]	0.14	0.46	0.05	0.17	0.45	0.03	0.09	0.56	0.06	0.17	0.37	0.05
95th-Percentile Queue Length [ft/ln]	3.51	11.62	1.26	4.25	11.24	0.63	2.29	14.01	1.49	4.21	9.15	1.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.96	6.14	5.57	8.05	6.12	5.53	7.17	5.76	5.06	7.78	5.48	5.05
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	6.39			6.48			5.83			5.89		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	6.12											
Intersection LOS	A											
Intersection V/C	0.174											

Emissions

Vehicle Miles Traveled [mph]	3.15	14.50	1.68	3.97	14.79	0.88	32.23	273.99	32.23	4.44	15.37	2.40
Stops [stops/h]	12.30	40.74	4.41	14.92	39.43	2.19	8.02	49.14	5.24	14.78	32.11	4.76
Fuel consumption [US gal/h]	0.25	0.99	0.11	0.30	0.99	0.06	1.40	11.77	1.38	0.32	0.95	0.15
CO [g/h]	17.22	69.52	7.81	21.32	69.44	4.02	98.10	822.73	96.36	22.59	66.59	10.18
NOx [g/h]	3.35	13.53	1.52	4.15	13.51	0.78	19.09	160.07	18.75	4.39	12.96	1.98
VOC [g/h]	3.99	16.11	1.81	4.94	16.09	0.93	22.74	190.68	22.33	5.23	15.43	2.36

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3507	3507	3507	3507
d_b, Bicycle Delay [s]	6.48	6.48	6.48	6.48
l_b,int, Bicycle LOS Score for Intersection	1.888	1.867	1.972	1.888
Bicycle LOS	A	A	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 3: Burgess/School Access

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):	0.036

Intersection Setup

Name	Haven School Access		Burgess Road		Burgess Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	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	Haven School Access		Burgess Road		Burgess Road	
Base Volume Input [veh/h]	0	0	0	113	216	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	1.1700	1.1700	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	19	15	0	0	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]	9	19	15	132	253	6
Peak Hour Factor	0.5000	0.5000	0.5000	0.8500	0.8500	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	10	8	39	74	3
Total Analysis Volume [veh/h]	18	38	30	155	298	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.05	0.02	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.67	10.43	7.95	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.15	7.15	1.84	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.15		1.29		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.57					
Intersection LOS	B					

Year 2045 Traffic Volume Scenarios

Haven School TIS

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

Scenario 4 2045 Back AM
6/25/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Signalized	HCM 7th Edition	SB Left	0.088	2.3	A
2	Black Forest/Burgess	Signalized	HCM 7th Edition	WB Left	0.246	7.0	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: Milam/Burgess

Control Type:	Signalized	Delay (sec / veh):	2.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.088

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	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	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	67	82	31	124	189	27
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.5700	1.5700	2.2300	2.2300	3.1100	3.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	129	69	277	588	84
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	29	35	19	75	160	23
Total Analysis Volume [veh/h]	114	140	75	301	639	91
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	2	0	0	6	0	0
Auxiliary Signal Groups						
Maximum Green [s]	40	0	0	40	0	0
Amber [s]	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	0.0	1.0	0.0	0.0
Walk [s]	5	0	0	5	0	0
Pedestrian Clearance [s]	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No		
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
Detector Location [ft]	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
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	14	0	0	14	0	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	10	0	0	10	0	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	0.0	0.0
Minimum Recall	No			No		
Maximum Recall	No			No		
Pedestrian Recall	No			No		

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	
C, Calculated Cycle Length [s]	16	16	16	16	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	8	8	8	8	
g / C, Green / Cycle	0.51	0.51	0.51	0.51	
(v / s)_i Volume / Saturation Flow Rate	0.03	0.09	0.07	0.08	
s, saturation flow rate [veh/h]	3560	1589	1125	3560	
c, Capacity [veh/h]	1814	810	874	1814	
d1, Uniform Delay [s]	2.04	2.16	3.30	2.15	
k, delay calibration	0.11	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.01	0.10	0.04	0.04	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.06	0.17	0.09	0.17	
d, Delay for Lane Group [s/veh]	2.05	2.26	3.35	2.20	
Lane Group LOS	A	A	A	A	
Critical Lane Group	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	0.00	0.02	0.06	0.01	
50th-Percentile Queue Length [ft/ln]	0.09	0.56	1.38	0.27	
95th-Percentile Queue Length [veh/ln]	0.01	0.04	0.10	0.02	
95th-Percentile Queue Length [ft/ln]	0.16	1.02	2.48	0.48	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.05	2.26	3.35	2.20	0.00	0.00
Movement LOS	A	A	A	A		
d_A, Approach Delay [s/veh]	2.17		2.43		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.32					
Intersection LOS	A					
Intersection V/C	0.088					

Emissions

Vehicle Miles Traveled [mph]	5.85	7.18	4.31	17.28	
Stops [stops/h]	1.60	4.99	12.18	4.75	
Fuel consumption [US gal/h]	0.30	0.39	0.30	0.87	
CO [g/h]	20.77	27.10	20.66	60.97	
NOx [g/h]	4.04	5.27	4.02	11.86	
VOC [g/h]	4.81	6.28	4.79	14.13	

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	4911	4911	0
d_b, Bicycle Delay [s]	17.25	17.25	8.15
l_b,int, Bicycle LOS Score for Intersection	1.769	1.870	1.560
Bicycle LOS	A	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	7.0
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.246

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	37	75	30	20	78	10	13	64	21	29	109	35
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	3.1500	3.1500	3.1500	1.9100	1.9100	1.9100	3.1100	3.1100	3.1100	1.5700	1.5700	1.5700
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	48	0	0	10	0	0	33	0	0	28
Total Hourly Volume [veh/h]	117	236	47	38	149	9	40	199	32	46	171	27
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800	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]	32	64	13	10	40	2	10	51	8	13	46	7
Total Analysis Volume [veh/h]	127	257	51	41	162	10	41	203	33	50	186	29
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	26	26	26	26	26	26	26	26	26	26	26	26
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	10	10	10	10	9	9	9	9	9	9
g / C, Green / Cycle	0.37	0.37	0.37	0.37	0.37	0.37	0.33	0.33	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.10	0.14	0.03	0.04	0.09	0.01	0.04	0.11	0.02	0.04	0.10	0.02
s, saturation flow rate [veh/h]	1213	1870	1589	1071	1870	1589	1166	1870	1589	1144	1870	1589
c, Capacity [veh/h]	562	683	581	482	683	581	500	624	531	487	624	531
d1, Uniform Delay [s]	8.58	6.21	5.53	8.90	5.86	5.39	8.89	6.62	6.03	9.14	6.55	6.01
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.20	0.34	0.06	0.07	0.18	0.01	0.07	0.30	0.05	0.09	0.26	0.04
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.38	0.09	0.09	0.24	0.02	0.08	0.33	0.06	0.10	0.30	0.05
d, Delay for Lane Group [s/veh]	8.78	6.55	5.60	8.98	6.04	5.40	8.96	6.92	6.07	9.23	6.82	6.05
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.42	0.60	0.10	0.14	0.35	0.02	0.14	0.51	0.08	0.17	0.46	0.07
50th-Percentile Queue Length [ft/ln]	10.39	14.89	2.61	3.47	8.73	0.50	3.46	12.80	1.88	4.35	11.58	1.65
95th-Percentile Queue Length [veh/ln]	0.75	1.07	0.19	0.25	0.63	0.04	0.25	0.92	0.14	0.31	0.83	0.12
95th-Percentile Queue Length [ft/ln]	18.70	26.80	4.69	6.25	15.72	0.89	6.23	23.04	3.39	7.82	20.84	2.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.78	6.55	5.60	8.98	6.04	5.40	8.96	6.92	6.07	9.23	6.82	6.05
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	7.09			6.58			7.12			7.19		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.03											
Intersection LOS	A											
Intersection V/C	0.246											

Emissions

Vehicle Miles Traveled [mph]	13.35	27.01	5.36	4.52	17.88	1.10	60.07	297.44	48.35	6.00	22.33	3.48
Stops [stops/h]	56.57	81.05	14.18	18.89	47.55	2.70	18.85	69.70	10.24	23.66	63.03	8.97
Fuel consumption [US gal/h]	1.09	1.90	0.36	0.37	1.20	0.07	2.65	12.92	2.09	0.47	1.53	0.23
CO [g/h]	76.13	132.99	24.96	25.55	83.73	4.99	185.37	902.79	145.94	32.98	106.64	15.98
NOx [g/h]	14.81	25.87	4.86	4.97	16.29	0.97	36.07	175.65	28.39	6.42	20.75	3.11
VOC [g/h]	17.64	30.82	5.79	5.92	19.40	1.16	42.96	209.23	33.82	7.64	24.71	3.70

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3025	3025	3025	3025
d_b, Bicycle Delay [s]	3.47	3.47	3.47	3.47
l_b,int, Bicycle LOS Score for Intersection	2.357	1.928	2.071	2.043
Bicycle LOS	B	A	B	B

Sequence

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

Haven School TIS

Vistro File: C:\...\pm.vistro
Report File: C:\...\2045 Back PM.pdf

Scenario 4 2045 Back PM
6/25/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Signalized	HCM 7th Edition	SB Left	0.157	2.3	A
2	Black Forest/Burgess	Signalized	HCM 7th Edition	WB Left	0.442	8.1	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: Milam/Burgess

Control Type:	Signalized	Delay (sec / veh):	2.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.157

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	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	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	130	146	22	119	105	23
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.5700	1.5700	2.2300	2.2300	3.1100	3.1100
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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	204	229	49	265	327	72
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	55	62	13	72	89	20
Total Analysis Volume [veh/h]	222	249	53	288	355	78
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	2	0	0	6	0	0
Auxiliary Signal Groups						
Maximum Green [s]	40	0	0	40	0	0
Amber [s]	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	0.0	1.0	0.0	0.0
Walk [s]	5	0	0	5	0	0
Pedestrian Clearance [s]	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No		
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
Detector Location [ft]	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
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	14	0	0	14	0	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	10	0	0	10	0	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	0.0	0.0
Minimum Recall	No			No		
Maximum Recall	No			No		
Pedestrian Recall	No			No		

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	
C, Calculated Cycle Length [s]	17	17	17	17	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	9	9	9	9	
g / C, Green / Cycle	0.53	0.53	0.53	0.53	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.16	0.06	0.08	
s, saturation flow rate [veh/h]	3560	1589	922	3560	
c, Capacity [veh/h]	1889	843	789	1889	
d1, Uniform Delay [s]	2.02	2.25	3.27	2.06	
k, delay calibration	0.11	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.03	0.19	0.04	0.04	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.12	0.30	0.07	0.15	
d, Delay for Lane Group [s/veh]	2.05	2.44	3.30	2.10	
Lane Group LOS	A	A	A	A	
Critical Lane Group	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	0.01	0.05	0.04	0.01	
50th-Percentile Queue Length [ft/ln]	0.18	1.13	1.06	0.24	
95th-Percentile Queue Length [veh/ln]	0.01	0.08	0.08	0.02	
95th-Percentile Queue Length [ft/ln]	0.32	2.04	1.91	0.44	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.05	2.44	3.30	2.10	0.00	0.00
Movement LOS	A	A	A	A		
d_A, Approach Delay [s/veh]	2.26		2.29		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.27					
Intersection LOS	A					
Intersection V/C	0.157					

Emissions

Vehicle Miles Traveled [mph]	11.39	12.77	3.04	16.54	
Stops [stops/h]	3.03	9.53	8.94	4.10	
Fuel consumption [US gal/h]	0.58	0.70	0.21	0.83	
CO [g/h]	40.42	49.09	14.70	57.76	
NOx [g/h]	7.86	9.55	2.86	11.24	
VOC [g/h]	9.37	11.38	3.41	13.39	

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	4684	4684	0
d_b, Bicycle Delay [s]	15.38	15.38	8.54
l_b,int, Bicycle LOS Score for Intersection	1.948	1.841	1.560
Bicycle LOS	A	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	8.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.442

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	20	106	25	28	105	14	16	137	27	23	77	25
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	3.1500	3.1500	3.1500	1.9100	1.9100	1.9100	3.1100	3.1100	3.1100	1.5700	1.5700	1.5700
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	40	0	0	14	0	0	42	0	0	20
Total Hourly Volume [veh/h]	63	334	39	53	201	13	50	426	42	36	121	19
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]	17	91	11	14	55	4	14	116	11	10	33	5
Total Analysis Volume [veh/h]	68	363	42	58	218	14	54	463	46	39	132	21
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	28	28	28	28	28	28	28	28	28	28	28	28
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	10	10	10	10	10	10	10	10	10	10
g / C, Green / Cycle	0.35	0.35	0.35	0.35	0.35	0.35	0.36	0.36	0.36	0.36	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.03	0.06	0.12	0.01	0.04	0.25	0.03	0.04	0.07	0.01
s, saturation flow rate [veh/h]	1148	1870	1589	980	1870	1589	1234	1870	1589	890	1870	1589
c, Capacity [veh/h]	486	662	563	381	662	563	565	676	574	333	676	574
d1, Uniform Delay [s]	9.57	7.28	6.03	11.38	6.64	5.92	8.25	7.62	5.91	12.26	6.17	5.81
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	0.71	0.06	0.18	0.29	0.02	0.07	1.24	0.06	0.15	0.14	0.03
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.55	0.07	0.15	0.33	0.02	0.10	0.69	0.08	0.12	0.20	0.04
d, Delay for Lane Group [s/veh]	9.70	7.99	6.08	11.56	6.93	5.94	8.33	8.86	5.97	12.42	6.31	5.84
Lane Group LOS	A	A	A	B	A	A	A	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.26	1.10	0.10	0.26	0.58	0.03	0.18	1.52	0.11	0.19	0.32	0.05
50th-Percentile Queue Length [ft/ln]	6.49	27.43	2.53	6.52	14.56	0.83	4.47	38.11	2.72	4.69	8.11	1.22
95th-Percentile Queue Length [veh/ln]	0.47	1.98	0.18	0.47	1.05	0.06	0.32	2.74	0.20	0.34	0.58	0.09
95th-Percentile Queue Length [ft/ln]	11.69	49.38	4.56	11.74	26.22	1.49	8.04	68.60	4.90	8.43	14.59	2.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.70	7.99	6.08	11.56	6.93	5.94	8.33	8.86	5.97	12.42	6.31	5.84
Movement LOS	A	A	A	B	A	A	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	8.06			7.81			8.58			7.50		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.13											
Intersection LOS	A											
Intersection V/C	0.442											

Emissions

Vehicle Miles Traveled [mph]	7.15	38.15	4.41	6.40	24.06	1.54	79.12	678.39	67.40	4.68	15.85	2.52
Stops [stops/h]	33.34	140.84	13.00	33.48	74.77	4.24	22.94	195.67	13.97	24.05	41.62	6.26
Fuel consumption [US gal/h]	0.61	2.94	0.31	0.58	1.71	0.10	3.48	29.84	2.91	0.42	1.05	0.16
CO [g/h]	42.82	205.44	21.36	40.89	119.59	7.27	242.93	2086.05	203.24	29.65	73.53	11.42
NOx [g/h]	8.33	39.97	4.16	7.96	23.27	1.41	47.27	405.87	39.54	5.77	14.31	2.22
VOC [g/h]	9.92	47.61	4.95	9.48	27.72	1.68	56.30	483.46	47.10	6.87	17.04	2.65

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	2852	2852	2852	2852
d_b, Bicycle Delay [s]	2.55	2.55	2.55	2.55
l_b,int, Bicycle LOS Score for Intersection	2.406	2.061	2.558	1.909
Bicycle LOS	B	B	B	A

Sequence

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

Haven School TIS

Vistro File: C:\...\AM.vistro
Report File: C:\...\2045 Total AM.pdf

Scenario 5 2045 Total AM
6/25/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Signalized	HCM 7th Edition	SB Left	0.108	2.3	A
2	Black Forest/Burgess	Signalized	HCM 7th Edition	WB Left	0.248	7.1	A
3	Burgess/School Access	Two-way stop	HCM 7th Edition	SB Left	0.090	24.7	C

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: Milam/Burgess

Control Type:	Signalized	Delay (sec / veh):	2.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.108

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	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	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	67	82	31	124	189	27
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.5700	1.5700	2.2300	2.2300	3.1100	3.1100
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	28	5	0	16	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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	157	74	277	604	87
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	29	43	20	75	164	24
Total Analysis Volume [veh/h]	114	171	80	301	657	95
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	2	0	0	6	0	0
Auxiliary Signal Groups						
Maximum Green [s]	40	0	0	40	0	0
Amber [s]	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	0.0	1.0	0.0	0.0
Walk [s]	5	0	0	5	0	0
Pedestrian Clearance [s]	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No		
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
Detector Location [ft]	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
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	14	0	0	14	0	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	10	0	0	10	0	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	0.0	0.0
Minimum Recall	No			No		
Maximum Recall	No			No		
Pedestrian Recall	No			No		

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	
C, Calculated Cycle Length [s]	16	16	16	16	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	8	8	8	8	
g / C, Green / Cycle	0.51	0.51	0.51	0.51	
(v / s)_i Volume / Saturation Flow Rate	0.03	0.11	0.07	0.08	
s, saturation flow rate [veh/h]	3560	1589	1094	3560	
c, Capacity [veh/h]	1819	812	863	1819	
d1, Uniform Delay [s]	2.03	2.20	3.32	2.15	
k, delay calibration	0.11	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.01	0.13	0.05	0.04	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.06	0.21	0.09	0.17	
d, Delay for Lane Group [s/veh]	2.05	2.33	3.36	2.19	
Lane Group LOS	A	A	A	A	
Critical Lane Group	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	0.00	0.03	0.06	0.01	
50th-Percentile Queue Length [ft/ln]	0.09	0.72	1.48	0.27	
95th-Percentile Queue Length [veh/ln]	0.01	0.05	0.11	0.02	
95th-Percentile Queue Length [ft/ln]	0.16	1.30	2.67	0.48	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.05	2.33	3.36	2.19	0.00	0.00
Movement LOS	A	A	A	A		
d_A, Approach Delay [s/veh]	2.22		2.44		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.34					
Intersection LOS	A					
Intersection V/C	0.108					

Emissions

Vehicle Miles Traveled [mph]	5.85	8.77	4.59	17.28	
Stops [stops/h]	1.59	6.35	13.08	4.72	
Fuel consumption [US gal/h]	0.30	0.48	0.32	0.87	
CO [g/h]	20.76	33.37	22.10	60.93	
NOx [g/h]	4.04	6.49	4.30	11.85	
VOC [g/h]	4.81	7.73	5.12	14.12	

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	4896	4896	0
d_b, Bicycle Delay [s]	17.13	17.13	8.17
l_b,int, Bicycle LOS Score for Intersection	1.795	1.874	1.560
Bicycle LOS	A	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	7.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.248

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	37	75	30	20	78	10	13	64	21	29	109	35
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	3.1500	3.1500	3.1500	1.9100	1.9100	1.9100	3.1100	3.1100	3.1100	1.5700	1.5700	1.5700
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	0	0	0	0	3	6	0	5	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	48	0	0	10	0	0	36	0	0	28
Total Hourly Volume [veh/h]	126	236	47	38	149	9	40	202	35	46	176	27
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800	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]	34	64	13	10	40	2	10	52	9	13	48	7
Total Analysis Volume [veh/h]	137	257	51	41	162	10	41	206	36	50	191	29
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	27	27	27	27	27	27	27	27	27	27	27	27
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	10	10	10	10	9	9	9	9	9	9
g / C, Green / Cycle	0.36	0.36	0.36	0.36	0.36	0.36	0.33	0.33	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.11	0.14	0.03	0.04	0.09	0.01	0.04	0.11	0.02	0.04	0.10	0.02
s, saturation flow rate [veh/h]	1213	1870	1589	1071	1870	1589	1161	1870	1589	1138	1870	1589
c, Capacity [veh/h]	561	683	581	482	683	581	497	626	532	485	626	532
d1, Uniform Delay [s]	8.69	6.23	5.55	8.93	5.89	5.41	8.94	6.63	6.04	9.17	6.57	6.01
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.22	0.34	0.06	0.08	0.18	0.01	0.07	0.30	0.05	0.09	0.27	0.04
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.38	0.09	0.09	0.24	0.02	0.08	0.33	0.07	0.10	0.30	0.05
d, Delay for Lane Group [s/veh]	8.91	6.58	5.62	9.01	6.06	5.42	9.01	6.94	6.09	9.27	6.84	6.05
Lane Group LOS	A	A	A	A	A	A	A	A	A	A	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.46	0.60	0.11	0.14	0.35	0.02	0.14	0.52	0.08	0.18	0.48	0.07
50th-Percentile Queue Length [ft/ln]	11.40	15.02	2.63	3.49	8.81	0.50	3.49	13.07	2.06	4.38	11.98	1.65
95th-Percentile Queue Length [veh/ln]	0.82	1.08	0.19	0.25	0.63	0.04	0.25	0.94	0.15	0.32	0.86	0.12
95th-Percentile Queue Length [ft/ln]	20.52	27.03	4.73	6.28	15.86	0.90	6.29	23.52	3.72	7.88	21.56	2.98

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.91	6.58	5.62	9.01	6.06	5.42	9.01	6.94	6.09	9.27	6.84	6.05
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
d_A, Approach Delay [s/veh]	7.18			6.60			7.13			7.21		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	7.07											
Intersection LOS	A											
Intersection V/C	0.248											

Emissions

Vehicle Miles Traveled [mph]	14.40	27.01	5.36	4.52	17.88	1.10	60.07	301.83	52.75	6.00	22.93	3.48
Stops [stops/h]	61.84	81.48	14.26	18.94	47.80	2.71	18.95	70.89	11.20	23.74	64.97	8.97
Fuel consumption [US gal/h]	1.18	1.91	0.36	0.37	1.20	0.07	2.65	13.11	2.28	0.47	1.57	0.23
CO [g/h]	82.69	133.24	25.01	25.59	83.88	4.99	185.44	916.24	159.23	33.03	109.67	15.98
NOx [g/h]	16.09	25.92	4.87	4.98	16.32	0.97	36.08	178.27	30.98	6.43	21.34	3.11
VOC [g/h]	19.16	30.88	5.80	5.93	19.44	1.16	42.98	212.35	36.90	7.66	25.42	3.70

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	3014	3014	3014	3014
d_b, Bicycle Delay [s]	3.41	3.41	3.41	3.41
l_b,int, Bicycle LOS Score for Intersection	2.373	1.928	2.086	2.051
Bicycle LOS	B	A	B	B

Sequence

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

Intersection Level Of Service Report
Intersection 3: Burgess/School Access

Control Type:	Two-way stop	Delay (sec / veh):	24.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.090

Intersection Setup

Name	Haven School Access		Burgess Road		Burgess Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	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	Haven School Access		Burgess Road		Burgess Road	
Base Volume Input [veh/h]	0	0	0	113	216	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	3.1100	3.1100	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	19	33	0	0	14
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]	9	19	33	351	672	14
Peak Hour Factor	0.5000	0.5000	0.5000	0.9200	0.9200	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	10	17	95	183	7
Total Analysis Volume [veh/h]	18	38	66	382	730	28
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	0.09	0.06	0.08	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	24.72	12.55	9.60	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.53	0.53	0.25	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	13.20	13.20	6.31	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.46		1.41		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.23					
Intersection LOS	C					

Haven School TIS

Vistro File: C:\...\pm.vistro
Report File: C:\...\2045 Total PM.pdf

Scenario 5 2045 Total PM
6/25/2024

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Milam/Burgess	Signalized	HCM 7th Edition	SB Left	0.165	2.3	A
2	Black Forest/Burgess	Signalized	HCM 7th Edition	WB Left	0.443	8.2	A
3	Burgess/School Access	Two-way stop	HCM 7th Edition	SB Left	0.076	21.7	C

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: Milam/Burgess

Control Type:	Signalized	Delay (sec / veh):	2.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.165

Intersection Setup

Name	Milam Road		Milam Road		Burgess Road	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	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	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Milam Road		Milam Road		Burgess Road	
Base Volume Input [veh/h]	130	146	22	119	105	23
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
Proportion of CAVs [%]	0.00					
Growth Factor	1.5700	1.5700	2.2300	2.2300	3.1100	3.1100
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	2	0	16	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
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	204	242	51	265	343	75
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	55	66	14	72	93	20
Total Analysis Volume [veh/h]	222	263	55	288	373	82
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	2	0	0	6	0	0
Auxiliary Signal Groups						
Maximum Green [s]	40	0	0	40	0	0
Amber [s]	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	0.0	0.0	1.0	0.0	0.0
Walk [s]	5	0	0	5	0	0
Pedestrian Clearance [s]	10	0	0	10	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No		
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0
Detector Location [ft]	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
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	14	0	0	14	0	0
Lead / Lag	-	-	-	-	-	-
Minimum Green [s]	10	0	0	10	0	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	0.0	0.0
Minimum Recall	No			No		
Maximum Recall	No			No		
Pedestrian Recall	No			No		

Exclusive Pedestrian Phase

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

Lane Group Calculations

Lane Group	C	R	L	C	
C, Calculated Cycle Length [s]	17	17	17	17	
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	
g_i, Effective Green Time [s]	9	9	9	9	
g / C, Green / Cycle	0.53	0.53	0.53	0.53	
(v / s)_i Volume / Saturation Flow Rate	0.06	0.17	0.06	0.08	
s, saturation flow rate [veh/h]	3560	1589	910	3560	
c, Capacity [veh/h]	1896	846	784	1896	
d1, Uniform Delay [s]	2.01	2.26	3.27	2.05	
k, delay calibration	0.11	0.11	0.11	0.11	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	
d2, Incremental Delay [s]	0.03	0.21	0.04	0.04	
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	
Rp, platoon ratio	1.00	1.00	1.00	1.00	
PF, progression factor	1.00	1.00	1.00	1.00	

Lane Group Results

X, volume / capacity	0.12	0.31	0.07	0.15	
d, Delay for Lane Group [s/veh]	2.04	2.47	3.30	2.09	
Lane Group LOS	A	A	A	A	
Critical Lane Group	No	Yes	No	No	
50th-Percentile Queue Length [veh/ln]	0.01	0.05	0.04	0.01	
50th-Percentile Queue Length [ft/ln]	0.18	1.22	1.11	0.24	
95th-Percentile Queue Length [veh/ln]	0.01	0.09	0.08	0.02	
95th-Percentile Queue Length [ft/ln]	0.32	2.19	1.99	0.44	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.04	2.47	3.30	2.09	0.00	0.00
Movement LOS	A	A	A	A		
d_A, Approach Delay [s/veh]	2.27		2.29		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.28					
Intersection LOS	A					
Intersection V/C	0.165					

Emissions

Vehicle Miles Traveled [mph]	11.39	13.49	3.16	16.54	
Stops [stops/h]	3.01	10.21	9.29	4.06	
Fuel consumption [US gal/h]	0.58	0.74	0.22	0.83	
CO [g/h]	40.38	52.01	15.26	57.71	
NOx [g/h]	7.86	10.12	2.97	11.23	
VOC [g/h]	9.36	12.05	3.54	13.38	

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	4664	4664	0
d_b, Bicycle Delay [s]	15.21	15.21	8.58
l_b,int, Bicycle LOS Score for Intersection	1.960	1.843	1.560
Bicycle LOS	A	A	A

Sequence

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

Intersection Level Of Service Report
Intersection 2: Black Forest/Burgess

Control Type:	Signalized	Delay (sec / veh):	8.2
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.443

Intersection Setup

Name	Black Forest Road			Black Forest Road			Burgess Road			Burgess 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	1	0	0	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00
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	Black Forest Road			Black Forest Road			Burgess Road			Burgess Road		
Base Volume Input [veh/h]	20	106	25	28	105	14	16	137	27	23	77	25
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	3.1500	3.1500	3.1500	1.9100	1.9100	1.9100	3.1100	3.1100	3.1100	1.5700	1.5700	1.5700
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	0	0	3	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
Right Turn on Red Volume [veh/h]	0	0	40	0	0	14	0	0	45	0	0	20
Total Hourly Volume [veh/h]	67	334	39	53	201	13	50	429	45	36	123	19
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]	18	91	11	14	55	4	14	117	12	10	33	5
Total Analysis Volume [veh/h]	73	363	42	58	218	14	54	466	49	39	134	21
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]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
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 (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	40	0	0	40	0	0	40	0	0	40	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
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	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
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	0.0	40.0	0.0	0.0	40.0	0.0	0.0	40.0	0.0
Advanced 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
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	14	0	0	14	0	0	14	0	0	14	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

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	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	28	28	28	28	28	28	28	28	28	28	28	28
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	10	10	10	10	10	10	10	10	10	10
g / C, Green / Cycle	0.35	0.35	0.35	0.35	0.35	0.35	0.36	0.36	0.36	0.36	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.03	0.06	0.12	0.01	0.04	0.25	0.03	0.04	0.07	0.01
s, saturation flow rate [veh/h]	1148	1870	1589	980	1870	1589	1232	1870	1589	886	1870	1589
c, Capacity [veh/h]	484	662	563	380	662	563	565	679	577	332	679	577
d1, Uniform Delay [s]	9.66	7.32	6.06	11.44	6.68	5.95	8.27	7.64	5.92	12.31	6.18	5.81
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.14	0.71	0.06	0.18	0.29	0.02	0.07	1.24	0.06	0.16	0.14	0.03
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	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.55	0.07	0.15	0.33	0.02	0.10	0.69	0.08	0.12	0.20	0.04
d, Delay for Lane Group [s/veh]	9.80	8.03	6.12	11.62	6.97	5.97	8.34	8.88	5.98	12.46	6.32	5.84
Lane Group LOS	A	A	A	B	A	A	A	A	A	B	A	A
Critical Lane Group	No	Yes	No	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.28	1.11	0.10	0.26	0.59	0.03	0.18	1.54	0.12	0.19	0.33	0.05
50th-Percentile Queue Length [ft/ln]	7.07	27.76	2.56	6.58	14.74	0.84	4.50	38.62	2.92	4.72	8.28	1.23
95th-Percentile Queue Length [veh/ln]	0.51	2.00	0.18	0.47	1.06	0.06	0.32	2.78	0.21	0.34	0.60	0.09
95th-Percentile Queue Length [ft/ln]	12.73	49.96	4.61	11.84	26.53	1.51	8.09	69.51	5.25	8.49	14.91	2.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.80	8.03	6.12	11.62	6.97	5.97	8.34	8.88	5.98	12.46	6.32	5.84
Movement LOS	A	A	A	B	A	A	A	A	A	B	A	A
d_A, Approach Delay [s/veh]	8.14			7.85			8.58			7.50		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	8.17											
Intersection LOS	A											
Intersection V/C	0.443											

Emissions

Vehicle Miles Traveled [mph]	7.67	38.15	4.41	6.40	24.06	1.54	79.12	682.79	71.80	4.68	16.09	2.52
Stops [stops/h]	36.12	141.76	13.09	33.60	75.29	4.27	22.96	197.22	14.91	24.10	42.30	6.26
Fuel consumption [US gal/h]	0.66	2.95	0.31	0.59	1.72	0.10	3.48	30.04	3.10	0.42	1.07	0.16
CO [g/h]	46.21	206.03	21.41	40.98	119.91	7.29	242.95	2099.78	216.52	29.70	74.67	11.42
NOx [g/h]	8.99	40.09	4.17	7.97	23.33	1.42	47.27	408.54	42.13	5.78	14.53	2.22
VOC [g/h]	10.71	47.75	4.96	9.50	27.79	1.69	56.31	486.64	50.18	6.88	17.31	2.65

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_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]	2837	2837	2837	2837
d_b, Bicycle Delay [s]	2.47	2.47	2.47	2.47
l_b,int, Bicycle LOS Score for Intersection	2.414	2.061	2.573	1.913
Bicycle LOS	B	B	B	A

Sequence

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

Intersection Level Of Service Report
Intersection 3: Burgess/School Access

Control Type:	Two-way stop	Delay (sec / veh):	21.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.076

Intersection Setup

Name	Haven School Access		Burgess Road		Burgess Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	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	Haven School Access		Burgess Road		Burgess Road	
Base Volume Input [veh/h]	0	0	0	113	216	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	3.1100	3.1100	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	19	15	0	0	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]	9	19	15	351	672	6
Peak Hour Factor	0.5000	0.5000	0.5000	0.9200	0.9200	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	10	8	95	183	3
Total Analysis Volume [veh/h]	18	38	30	382	730	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.06	0.03	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	21.65	12.14	9.33	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.47	0.47	0.11	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	11.78	11.78	2.71	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.20		0.68		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.93					
Intersection LOS	C					

Appendix E

Traffic Signal Warrant Analysis

Traffic Signal Warrant Volumes

Time of Day	Year 2024 Volumes												Year 2045 Volumes											
	Northbound			Southbound			Eastbound			Westbound			Northbound			Southbound			Eastbound			Westbound		
	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT	LT	Thru	RT
6:00	0	21	19	1	56	0	0	0	0	146	0	16	0	33	30	2	125	0	0	0	0	453	0	50
7:00	0	70	95	19	139	0	0	0	0	275	0	26	0	110	149	42	310	0	0	0	0	854	0	81
8:00	0	69	168	20	103	0	0	0	0	235	0	19	0	108	263	45	230	0	0	0	0	730	0	59
9:00	0	55	93	10	72	1	0	0	0	165	0	23	0	86	146	22	160	1	0	0	0	512	0	71
10:00	0	57	101	12	82	1	0	1	1	155	0	16	0	89	158	27	183	1	0	1	1	481	0	50
11:00	0	78	164	15	95	0	0	1	0	137	0	17	0	122	257	33	212	0	0	1	0	425	0	53
12:00	0	81	125	23	71	0	0	0	0	110	0	26	0	127	196	51	158	0	0	0	0	342	0	81
13:00	0	56	130	22	72	0	1	0	0	115	0	10	0	88	204	49	160	0	1	0	0	357	0	31
14:00	0	68	156	17	77	0	0	0	0	138	0	16	0	106	244	38	172	0	0	0	0	428	0	50
15:00	0	106	223	32	83	0	0	0	0	177	0	27	0	166	349	71	185	0	0	0	0	550	0	84
16:00	0	133	285	35	107	0	0	1	0	147	1	13	0	208	446	78	238	0	0	1	0	456	1	40
17:00	0	144	260	27	90	0	0	0	0	147	0	12	0	226	407	60	201	0	0	0	0	456	0	37

Traffic Signal Warrant Analysis

Project Name	**Haven School TIS**
Project/File #	**Haven School**
Scenario	**Year 2024 Traffic**

Intersection Information	
Major Street Name	Milam Road
North/South or East/West	N/S
Speed Limit	45 mph or greater
# of Approach Lanes	1
% of Right Turn Traffic to Include	0%
Minor Street Name	Burgess Road
# of Approach Lanes	1
% of Right Turn Traffic to Include	50%
Isolated Community < 10,000 pop	No

What Additional Warrants to Consider?	
Warrant 3, Peak Hour (A - Vol. and Delay)	No
Warrant 4, Pedestrian Volume	No
Warrant 5, School Crossing	No
Warrant 6, Coordinated Signal System	No
Warrant 7, Crash Experience	No
Warrant 8, Roadway Network	No
Warrant 9, Intersection Near a Grade Crossing	No
All-Way Stop Warrant	No

Traffic Signal Warrant Analysis

Milam Road (Major Street) Volume

Northbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	0	21	19	
7 - 8 AM	0	70	96	
8 - 9 AM	0	69	158	
9 - 10 AM	0	55	93	
10 - 11 AM	0	57	101	
11 - 12 PM	0	78	164	
12 - 1 PM	0	81	125	
1 - 2 PM	0	56	130	
2 - 3 PM	0	68	156	
3 - 4 PM	0	106	223	
4 - 5 PM	0	133	285	
5 - 6 PM	0	144	260	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			**2,748**	**0**

Southbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	1	56	0	
7 - 8 AM	19	139	0	
8 - 9 AM	20	103	0	
9 - 10 AM	10	72	1	
10 - 11 AM	12	82	1	
11 - 12 PM	15	95	0	
12 - 1 PM	23	71	0	
1 - 2 PM	22	72	0	
2 - 3 PM	17	77	0	
3 - 4 PM	32	83	0	
4 - 5 PM	35	107	0	
5 - 6 PM	27	90	0	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			**1,282**	**0**

Burgess Road (Minor Street) Volume

Eastbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	0	0	0	
7 - 8 AM	0	0	0	
8 - 9 AM	0	0	0	
9 - 10 AM	0	0	0	
10 - 11 AM	0	1	1	
11 - 12 PM	0	1	0	
12 - 1 PM	0	0	0	
1 - 2 PM	1	0	0	
2 - 3 PM	0	0	0	
3 - 4 PM	0	0	0	
4 - 5 PM	0	1	0	
5 - 6 PM	0	0	0	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			**5**	**0**

Westbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	146	0	16	
7 - 8 AM	275	0	26	
8 - 9 AM	235	0	19	
9 - 10 AM	165	0	23	
10 - 11 AM	155	0	16	
11 - 12 PM	137	0	17	
12 - 1 PM	110	0	26	
1 - 2 PM	115	0	10	
2 - 3 PM	138	0	16	
3 - 4 PM	177	0	27	
4 - 5 PM	147	1	13	
5 - 6 PM	147	0	12	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			**2,169**	**0**

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Haven School TIS
Project/File #	Haven School
Scenario	Year 2024 Traffic

Intersection Information			
Major Street (N/S Road)	Milam Road	Minor Street (E/W Road)	Burgess Road
Analyzed with	1 approach lane	Analyzed with	1 Approach Lane
Total Approach Volume	4030 vehicles	Total Approach Volume	2174 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	100 percent applied	Right turn reduction of	50 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

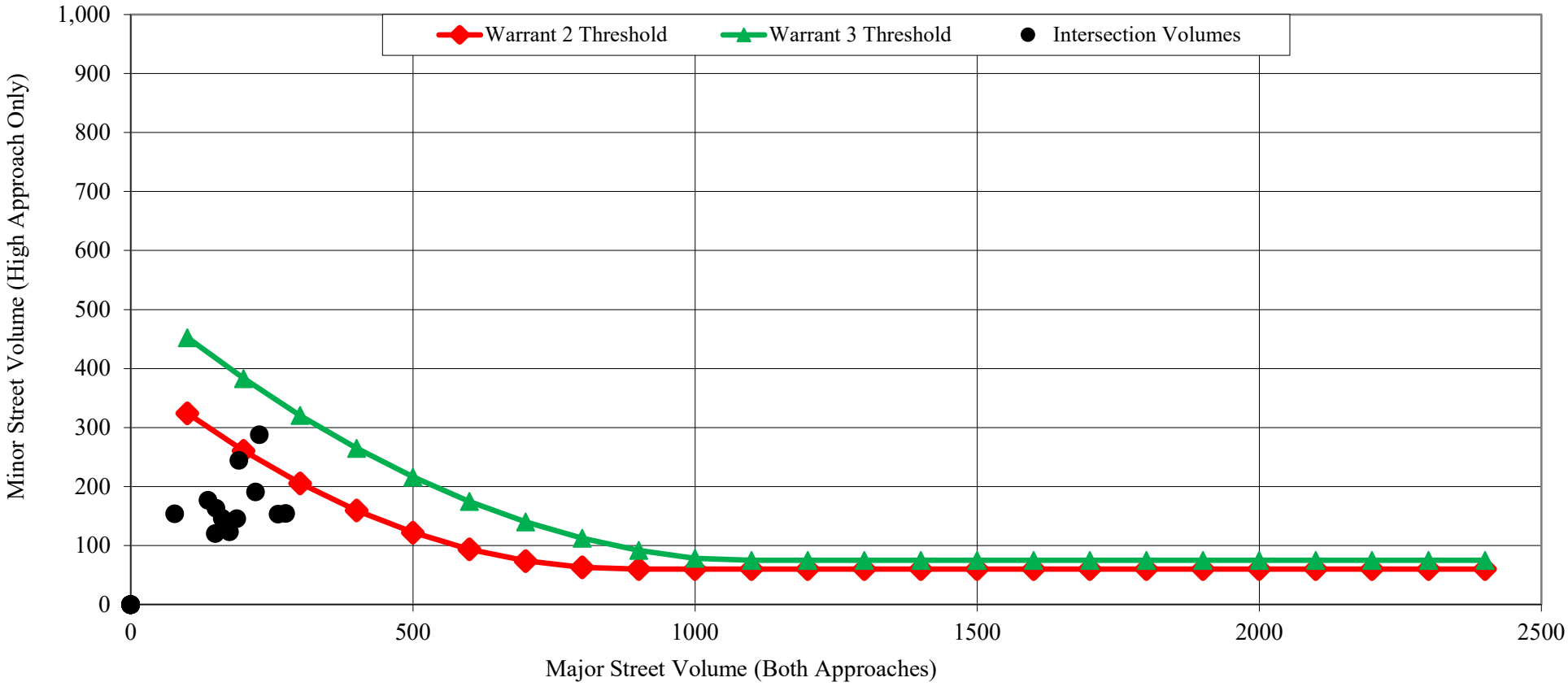
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	0 hours	0 hours	0 (Cond. A) & 0 (Cond. B)
Criteria - Major Street (veh/hr)	350	525	280 (Cond. A) & 420 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Not Satisfied**
Required values reached for	1 hour
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Examined**	**Not Satisfied**
Required values reached for		0 hours
Criteria - Total Approach Volume (veh in one hour)		See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)		
Criteria - Minor Street High Side Delay (veh-hrs)		

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Traffic Signal Warrant Analysis

Project Name	**Haven School TIS**
Project/File #	**Haven School**
Scenario	**Year 2045 Total**

Intersection Information	
Major Street Name	Milam Road
North/South or East/West	N/S
Speed Limit	45 mph or greater
# of Approach Lanes	2 or more
% of Right Turn Traffic to Include	0%
Minor Street Name	Burgess Road
# of Approach Lanes	1
% of Right Turn Traffic to Include	50%
Isolated Community < 10,000 pop	No

What Additional Warrants to Consider?	
Warrant 3, Peak Hour (A - Vol. and Delay)	No
Warrant 4, Pedestrian Volume	No
Warrant 5, School Crossing	No
Warrant 6, Coordinated Signal System	No
Warrant 7, Crash Experience	No
Warrant 8, Roadway Network	No
Warrant 9, Intersection Near a Grade Crossing	No
All-Way Stop Warrant	No

Sustainable Traffic Solutions, Inc.

Traffic Signal Warrant Analysis

Milam Road (Major Street) Volume

Northbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	0	33	30	
7 - 8 AM	0	110	149	
8 - 9 AM	0	108	263	
9 - 10 AM	0	86	146	
10 - 11 AM	0	89	158	
11 - 12 PM	0	122	257	
12 - 1 PM	0	127	196	
1 - 2 PM	0	88	204	
2 - 3 PM	0	106	244	
3 - 4 PM	0	166	349	
4 - 5 PM	0	208	446	
5 - 6 PM	0	226	407	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			4,318	0

Southbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	2	125	0	
7 - 8 AM	42	310	0	
8 - 9 AM	45	230	0	
9 - 10 AM	22	160	1	
10 - 11 AM	27	183	1	
11 - 12 PM	33	212	0	
12 - 1 PM	51	158	0	
1 - 2 PM	49	160	0	
2 - 3 PM	38	172	0	
3 - 4 PM	71	185	0	
4 - 5 PM	78	238	0	
5 - 6 PM	60	201	0	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			2,854	0

Burgess Road (Minor Street) Volume

Eastbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	0	0	0	
7 - 8 AM	0	0	0	
8 - 9 AM	0	0	0	
9 - 10 AM	0	0	0	
10 - 11 AM	0	1	1	
11 - 12 PM	0	1	0	
12 - 1 PM	0	0	0	
1 - 2 PM	1	0	0	
2 - 3 PM	0	0	0	
3 - 4 PM	0	0	0	
4 - 5 PM	0	1	0	
5 - 6 PM	0	0	0	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			5	0

Westbound Volume by Hour				
Time	Left Turns	Through	Right Turns	Peds/Bikes
12 - 1 AM				
1 - 2 AM				
2 - 3 AM				
3 - 4 AM				
4 - 5 AM				
5 - 6 AM				
6 - 7 AM	453	0	50	
7 - 8 AM	854	0	81	
8 - 9 AM	730	0	59	
9 - 10 AM	512	0	71	
10 - 11 AM	481	0	50	
11 - 12 PM	425	0	53	
12 - 1 PM	342	0	81	
1 - 2 PM	357	0	31	
2 - 3 PM	428	0	50	
3 - 4 PM	550	0	84	
4 - 5 PM	456	1	40	
5 - 6 PM	456	0	37	
6 - 7 PM				
7 - 8 PM				
8 - 9 PM				
9 - 10 PM				
10 - 11 PM				
11 - 12 AM				
Total Vehicles (unadjusted)			6,732	0

Traffic Signal Warrant Analysis

Warrants 1 - 3 (Volume Warrants)

Project Name	Haven School TIS
Project/File #	Haven School
Scenario	Year 2045 Total

Intersection Information			
Major Street (N/S Road)	Milam Road	Minor Street (E/W Road)	Burgess Road
Analyzed with	2 or more approach lanes	Analyzed with	1 Approach Lane
Total Approach Volume	7172 vehicles	Total Approach Volume	6737 vehicles
Total Ped/Bike Volume	0 crossings	Total Ped/Bike Volume	0 crossings
Right turn reduction of	100 percent applied	Right turn reduction of	50 percent applied

No high speed or isolated community reduction applied to the Volume Warrant thresholds.

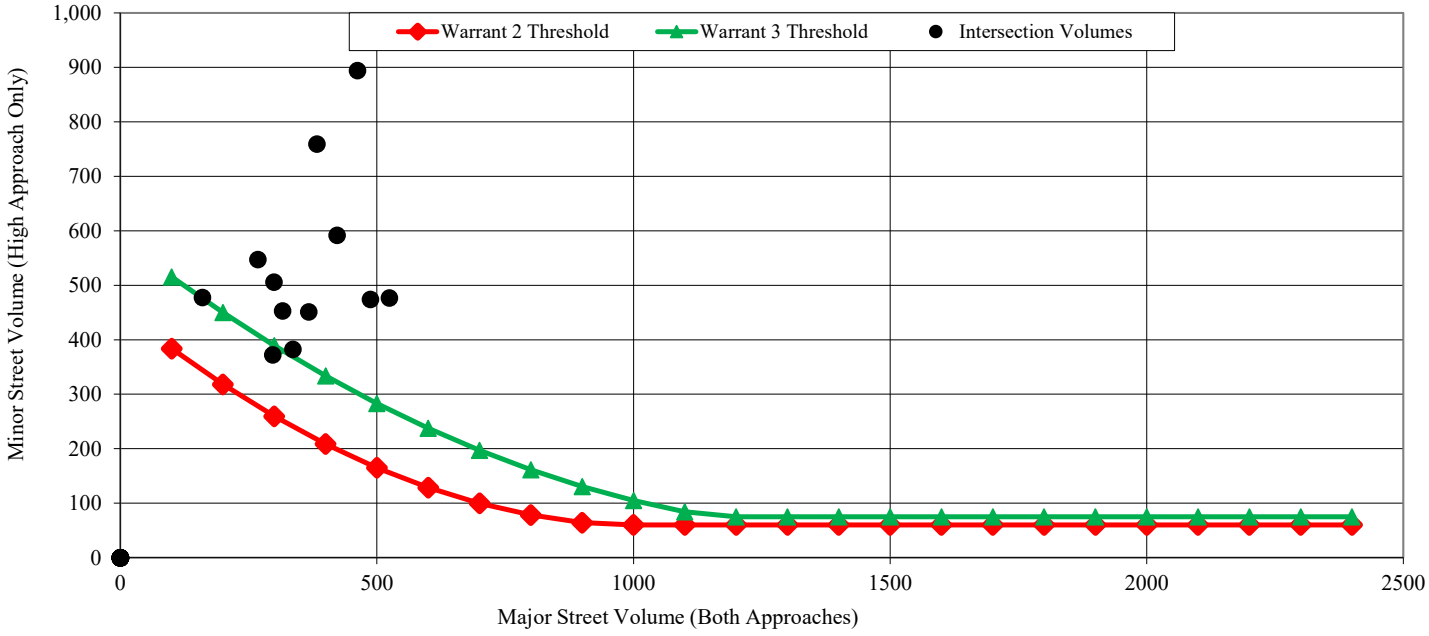
Warrant 1, Eight Hour Vehicular Volume			
	Condition A	**Condition B**	**Condition A+B***
Condition Satisfied?	**Not Satisfied**	**Not Satisfied**	**Not Satisfied**
Required values reached for	4 hours	0 hours	7 (Cond. A) & 1 (Cond. B)
Criteria - Major Street (veh/hr)	420	630	336 (Cond. A) & 504 (Cond. B)
Criteria - Minor Street (veh/hr)	105	53	84 (Cond. A) & 42 (Cond. B)

* Should be applied only after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems.

Warrant 2, Four Hour Vehicular Volume	
Condition Satisfied?	**Satisfied**
Required values reached for	12 hours
Criteria	See Figure Below

Warrant 3, Peak Hour Vehicular Volume		
	Condition A	**Condition B**
Condition Satisfied?	**Not Examined**	**Satisfied**
Required values reached for		11 hours
Criteria - Total Approach Volume (veh in one hour)		See Figure Below
Criteria - Minor Street High Side Volume (veh in one hour)		
Criteria - Minor Street High Side Delay (veh-hrs)		

Figure 4C-2 (Warrant 2 - 70% Factor) & Figure 4C-4 (Warrant 3 - 70% Factor)



Pedestrian Crossing Volume

Appendix F

Roadway Improvement Cost Estimates

IMPROVEMENTS ON BURGESS ROAD AT THE SCHOOL ACCESS

June 12, 2024

Item No.	Work Activity	Quantity	Unit	Unit Cost	Total Cost
1	Unclassified Excavation	4,623	CY	$3.25	$15,023
2	Subgrade Preparation for Asphalt Pavement	2,521	SY	$1.95	$4,917
3	Asphalt Paving 6" Asphalt / 8" Class 5 Aggregate Base	2,521	SY	$52.60	$132,624
4	Latex Paint Pavement Markings	1	LS	$2,000.00	$2,000
5	Erosion Control	1	LS	$10,000.00	$10,000
6	Mobilization	1	LS	$16,460.00	$16,460
7	Work Zone Traffic Control	1	LS	$16,460.00	$16,460
8	Design and Construction Surveying	1	LS	$50,000.00	$50,000
9	Construction Administration	1	LS	$16,460.00	$16,460
	Subtotal				$263,900
	25% Contingency				$66,000
	Total				**$329,900**

Note. The cost estimate does not include costs for utility relocation and right-of-way acquisition.

IMPROVEMENTS ON THE SOUTH LEG OF MILAM ROAD

June 12, 2024

Item No.	Work Activity	Quantity	Unit	Unit Cost	Total Cost
1	Unclassified Excavation	2,187	CY	$3.25	$7,106
2	Subgrade Preparation for Asphalt Pavement	1,193	SY	$1.95	$2,326
3	Asphalt Paving 6" Asphalt / 8" Class 5 Aggregate Base	1,193	SY	$52.60	$62,735
4	Latex Paint Pavement Markings	1	LS	$2,000.00	$2,000
5	Erosion Control	1	LS	$10,000.00	$10,000
6	Mobilization	1	LS	$8,420.00	$8,420
7	Work Zone Traffic Control	1	LS	$8,420.00	$8,420
8	Design and Construction Surveying	1	LS	$50,000.00	$50,000
9	Construction Administration	1	LS	$8,420.00	$8,420
	Subtotal				$159,400
	25% Contingency				$39,900
	Total				**$199,300**

Note. The cost estimate does not include costs for utility relocation and right-of-way acquisition.

IMPROVEMENTS ON THE NORTH LEG OF MILAM ROAD

June 12, 2024

Item No.	Work Activity	Quantity	Unit	Unit Cost	Total Cost
1	Unclassified Excavation	2,780	CY	$3.25	$9,035
2	Subgrade Preparation for Asphalt Pavement	1,516	SY	$1.95	$2,957
3	Asphalt Paving 6" Asphalt / 8" Class 5 Aggregate Base	1,516	SY	$52.60	$79,760
4	Latex Paint Pavement Markings	1	LS	$2,000.00	$2,000
5	Erosion Control	1	LS	$10,000.00	$10,000
6	Mobilization	1	LS	$10,380.00	$10,380
7	Work Zone Traffic Control	1	LS	$10,380.00	$10,380
8	Design and Construction Surveying	1	LS	$50,000.00	$50,000
9	Construction Administration	1	LS	$10,380.00	$10,380
	Subtotal				$184,900
	25% Contingency				$46,200
	Total				**$231,100**

Note. The cost estimate does not include costs for utility relocation and right-of-way acquisition.

IMPROVEMENTS ON THE EAST LEG OF BURGESS ROAD

June 12, 2024

Item No.	Work Activity	Quantity	Unit	Unit Cost	Total Cost
1	Unclassified Excavation	5,352	CY	$3.25	$17,393
2	Subgrade Preparation for Asphalt Pavement	2,919	SY	$1.95	$5,692
3	Asphalt Paving 6" Asphalt / 8" Class 5 Aggregate Base	2,919	SY	$52.60	$153,548
4	Latex Paint Pavement Markings	1	LS	$2,000.00	$2,000
5	Erosion Control	1	LS	$10,000.00	$10,000
6	Mobilization	1	LS	$18,860.00	$18,860
7	Work Zone Traffic Control	1	LS	$18,860.00	$18,860
8	Design and Construction Surveying	1	LS	$50,000.00	$50,000
9	Construction Administration	1	LS	$18,860.00	$18,860
	Subtotal				$295,200
	25% Contingency				$73,800
	Total				**$369,000**

Note. The cost estimate does not include costs for utility relocation and right-of-way acquisition.