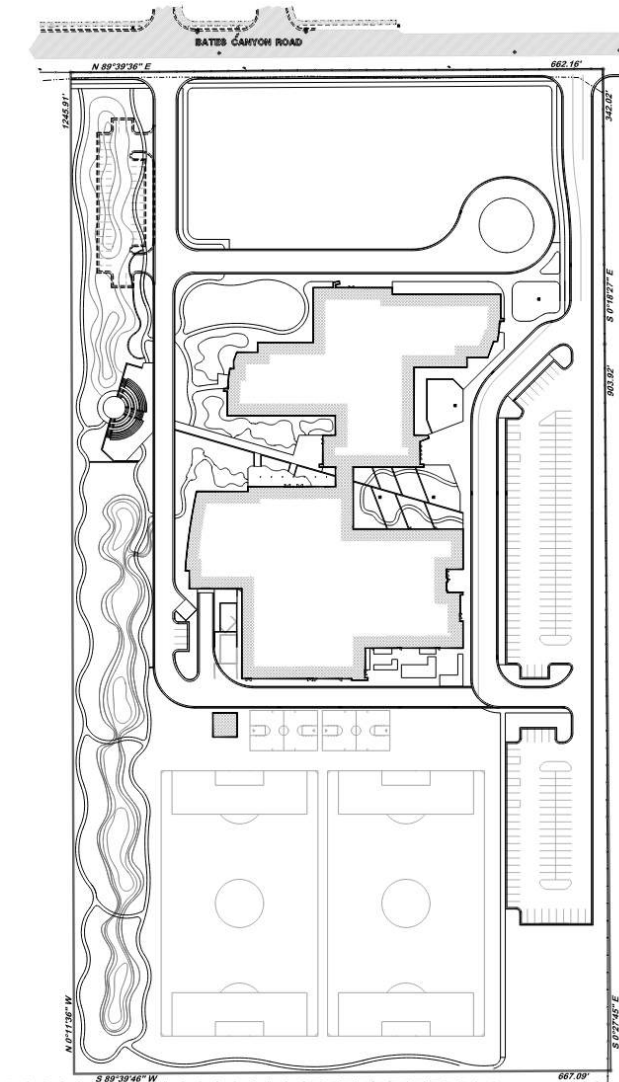


Stansbury Jr. High School

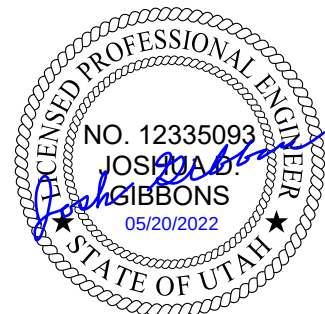
Traffic Impact Study



Erda, Utah

May 20, 2022

UT22-2191



EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Stansbury Jr. High School development located in Erda, Utah. The development is located on the south side of Bates Canyon Road between Rabbit Lane and Stratford Drive.

The purpose of this traffic impact study is to analyze traffic operations at key intersections for existing (2022), and future (2027) conditions with and without the proposed project and to recommend mitigation measures as needed. The morning peak hour level of service (LOS) results are shown in Table ES-1. Recommended storage lengths are shown in Table ES-2. An exhibit of the proposed mitigated roadway network is shown in Figure ES-1. A site plan of the project is provided in Appendix A.

Table ES-1: Morning Peak Hour Level of Service Results

Intersection	Level of Service							
	Existing (2022)				Future (2027)			
	BG	BG MIT	PP	PP MIT	BG	BG MIT	PP	PP MIT
1 Stallion Way / Bates Canyon Road	d	c	f	c	f	A	f	C
2 West Jr. High & HS Access / Bates Canyon Road	f	a	c	c	b	a	f	c
3 East HS Access / Bates Canyon Road	f	d	d	d	d	d	e	d
4 East Jr. High Access / Bates Canyon Road	-	-	c	c	-	-	f	A
5 Cambridge Way / Bates Canyon Road	c	c	f	d	e	d	f	d
6 Bates Canyon Road / S.R. 36	B	B	D	C	C	C	D	C

1. Intersection LOS values represent the overall intersection average for roundabout, signalized, and all-way stop-controlled (AWSC) intersections (uppercase letter) and the worst movement for all other unsignalized intersections (lowercase letter)

2. BG = Background (without project traffic), PP = Plus Project (with project traffic), MIT = Mitigated

Source: Hales Engineering, May 2022

Table ES-2: Recommended Storage Length

Intersection	Recommended Storage Lengths (feet)															
	Northbound				Southbound				Eastbound				Westbound			
	LT		RT		LT		RT		LT		RT		LT		RT	
	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
1 Stallion Way / Bates Canyon Road	-	-	-	-	-	200	-	200	-	100	-	-	-	-	-	100
3 East HS Access / Bates Canyon Road	-	-	-	-	-	100	-	100	-	50	-	-	-	-	-	-
4 East Jr. High Access / Bates Canyon Road	100	200	100	200	-	-	-	-	-	-	-	-	-	-	-	-
5 Cambridge Way / Bates Canyon Road	-	100	-	100	-	100	-	100	-	-	-	-	-	-	-	-
6 Bates Canyon Road / S.R. 36	650	650	250	250	300	300	300	300	250	250	200	200	50	100	-	100

1. Storage lengths are based on 2027 95th percentile queue lengths and do not include required deceleration / taper distances

2. E = Existing storage length (approximate), if applicable; P = proposed storage length for new turn lanes or changes to existing turn lanes, if applicable

Source: Hales Engineering, May 2022

SUMMARY OF KEY FINDINGS & RECOMMENDATIONS

Project Conditions

- The development will consist of a junior high school. At opening day, an enrollment of 700 students was assumed. The capacity enrollment is anticipated to be 1,200 students.
- On opening day, the project is anticipated to generate approximately 1,470 weekday daily trips, including 470 trips in the morning peak hour, and 261 trips in the afternoon peak hour
- With the school at its full capacity, the project is anticipated to generate approximately 2,520 weekday daily trips, including 804 trips in the morning peak hour, and 426 trips in the afternoon peak hour
- It is anticipated that approximately 630 linear feet of queue storage is needed to accommodate the Jr. High pick-up/drop-off lane while at opening day. If the school reaches its enrollment capacity, a queue length of approximately 1,230 linear feet is expected.
 - Hales Engineering recommends that staff have a plan to direct cars to the parking lot east of the loading area if the queue backs up too far, in order to avoid cars backing onto Bates Canyon Road.

2022	Background	Plus Project
Assumptions	• None	• 700 students enrolled on opening day • East Jr. High Access / Bates Canyon Rd: EB RT and WB LT ingress lanes • Previous mitigations implemented
Findings	• Poor LOS at: ◦ West HS Access / Bates Canyon Rd ◦ East HS Access / Bates Canyon Rd	• Poor LOS at: ◦ Stallion Way / Bates Canyon Rd ◦ Cambridge Way / Bates Canyon Rd
Mitigations	• Install EB LT lanes on Bates Canyon Road for HS accesses • Stallion Way: Stripe separate SB LT and RT pockets	• Stallion Way / Bates Canyon Rd: Install EB left and WB RT lanes • Bates Canyon Road: Install two-way left-turn lane (TWLTL) • Cambridge Way / Bates Canyon Road: Install NB, EB, and SB LT lanes
2027	Background	Plus Project
Assumptions	• 3% background traffic growth per year	• 1200 students enrolled, school at capacity • Previous mitigations implemented
Findings	• Poor LOS at: ◦ Stallion Way / Bates Canyon Rd ◦ Cambridge Way / Bates Canyon Rd	• Poor LOS at most study intersections
Mitigations	• Bates Canyon Rd: Install TWLTL • Stallion Way / Bates Canyon Rd: Convert to AWSC • Cambridge Way / Bates Canyon Rd: Install NB, EB, and SB LT lanes	• Bates Canyon Road: Widen to 5 Lanes • East HS Access: Stripe separate SB LT and RT pockets • East Jr. High Access / Bates Canyon Rd: Install roundabout • Bates Canyon Road / S.R. 36: Install dual NB LT lanes. Install overlap phase signal for EB RT

Erda - Stansbury Jr. High School
Mitigated Roadway Network

Morning Peak Hour
ES-1

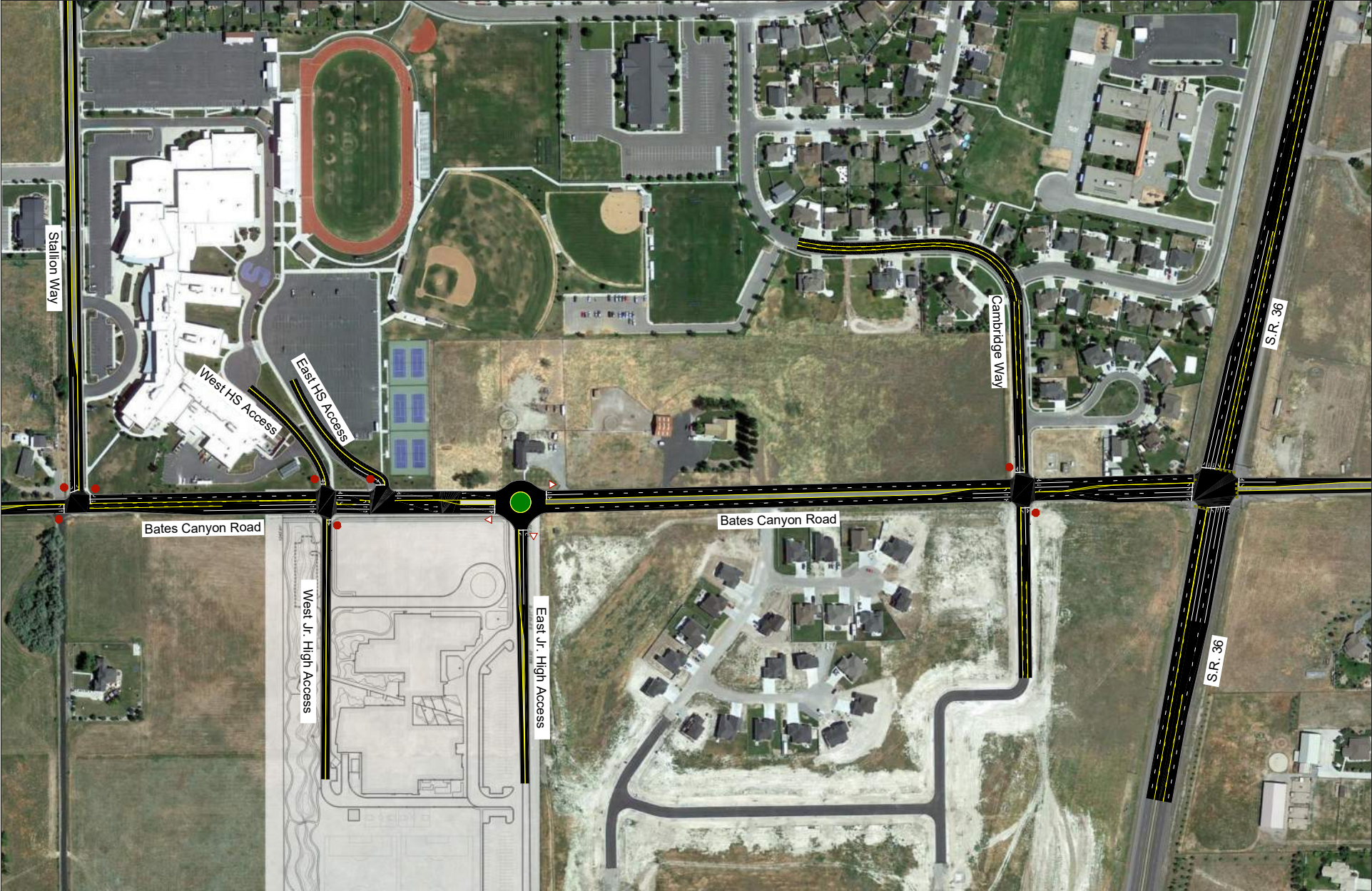


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I. INTRODUCTION

A. Purpose

This study addresses the traffic impacts associated with the proposed Stansbury Jr. High School development located in Erda, Utah. The proposed project is located on the south side of Bates Canyon Road, between Rabbit Lane and Stratford Drive. Figure 1 shows a vicinity map of the proposed development.

The purpose of this traffic impact study is to analyze traffic operations at key intersections for existing (2022) and future (2027) conditions with and without the proposed project and to recommend mitigation measures as needed.



Figure 1: Vicinity map showing the project location in Erda, Utah

B. Scope

The study area was defined based on conversations with the development team. This study was scoped to evaluate the traffic operational performance impacts of the project on the following intersections:

- Stallion Way / Bates Canyon Road
- West Jr. High & High School Access / Bates Canyon Road
- East High School Access / Bates Canyon Road
- Cambridge Way / Bates Canyon Road
- Bates Canyon Road / S.R. 36
- East Jr. High Access / Bates Canyon Road

C. Analysis Methodology

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured quantitatively and reported on a scale from A to F, with A representing the best performance and F the worst. Table 1 provides a brief description of each LOS letter designation and an accompanying average delay per vehicle for both signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM), 7th Edition, 2022 methodology was used in this study to remain consistent with “state-of-the-practice” professional standards. This methodology has different quantitative evaluations for signalized and unsignalized intersections. For signalized, roundabout, and all-way stop-controlled (AWSC) intersections, the LOS is provided for the overall intersection (weighted average of all approach delays). For all other unsignalized intersections, LOS is reported based on the worst movement.

Using Synchro/SimTraffic software, which follow the HCM methodology, the peak hour LOS was computed for each study intersection. Multiple runs of SimTraffic were used to provide a statistical evaluation of the interaction between the intersections. The detailed LOS reports are provided in Appendix C. Hales Engineering also calculated the 95th percentile queue lengths for the study intersections using SimTraffic. The detailed queue length reports are provided in Appendix D.

D. Level of Service Standards

For the purposes of this study, a minimum acceptable intersection performance for each of the study intersections was set at LOS D. If levels of service E or F conditions exist, an explanation and/or mitigation measures will be presented. A LOS D threshold is consistent with “state-of-the-practice” traffic engineering principles for urbanized areas.

Table 1: Level of Service Description

LOS		Description of Traffic Conditions	Average Delay (seconds/vehicle)	
			Signalized Intersections	Unsignalized Intersections
A		Free Flow / Insignificant Delay	≤ 10	≤ 10
B		Stable Operations / Minimum Delays	> 10 to 20	> 10 to 15
C		Stable Operations / Acceptable Delays	> 20 to 35	> 15 to 25
D		Approaching Unstable Flows / Tolerable Delays	> 35 to 55	> 25 to 35
E		Unstable Operations / Significant Delays	> 55 to 80	> 35 to 50
F		Forced Flows / Unpredictable Flows / Excessive Delays	> 80	> 50

Source: Hales Engineering Descriptions, based on the *Highway Capacity Manual* (HCM), 7th Edition, 2022 Methodology (Transportation Research Board)

II. EXISTING (2022) BACKGROUND CONDITIONS

A. Purpose

The purpose of the background analysis is to study the intersections and roadways during the peak travel periods of the day with background traffic and geometric conditions. Through this analysis, background traffic operational deficiencies can be identified, and potential mitigation measures recommended. This analysis provides a baseline condition that may be compared to the build conditions to identify the impacts of the development.

B. Roadway System

The primary roadway that will provide access to the project site is described below:

Bates Canyon Road – is a city-maintained roadway which is classified by the Tooele County Transportation Plan (2015) as a major collector. The roadway has one travel lane in each direction. The posted speed limit is 35 mph in the study area.

C. Traffic Volumes

Weekday morning (7:00 to 9:00 a.m.) and afternoon (2:00 to 4:00 p.m.) peak period traffic counts were performed at the following intersections:

- Stallion Way / Bates Canyon Road
- West High School Access / Bates Canyon Road
- East High School Access / Bates Canyon Road
- Cambridge Way / Bates Canyon Road
- Bates Canyon Road / S.R. 36

The counts were performed on Wednesday, April 20, 2022. The morning peak hour was determined to be between 7:15 and 8:15 a.m., and the afternoon peak hour was determined to be between 3:00 and 4:00 p.m. The morning peak hour volumes were approximately 19% higher than the afternoon peak hour volumes. Therefore, the morning peak hour volumes were used in the analysis to represent the worst-case conditions. Detailed count data are included in Appendix B.

Hales Engineering made seasonal adjustments to the observed traffic volumes. Monthly traffic volume data were obtained from a nearby UDOT automatic traffic recorder (ATR) on I-80(ATR #615). In recent years, traffic volumes in April have been approximately equal to average traffic volumes. Therefore, it was not necessary to adjust the observed traffic volumes to determine average turning movement counts at the study intersections.

The traffic counts were collected during the COVID-19 pandemic when traffic volumes may have been slightly reduced. According to the UDOT Automatic Traffic Signal Performance Measures (ATSPM) website, the traffic volumes on March 10, 2020 (pre-social distancing) were

approximately 12% higher than those on April 20, 2022. Therefore, the collected data were increased by 12% to represent normal conditions.

Figure 2 shows the existing morning peak hour volumes as well as intersection geometry at the study intersections.

D. Level of Service Analysis

Hales Engineering determined that during the morning peak hour, West High School Access / Bates Canyon Road and East HS Access / Bates Canyon Road currently operate at a poor level of service during the morning peak hour, as shown in Table 2. These results serve as a baseline condition for the impact analysis of the proposed development during existing (2022) conditions.

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Significant 95th percentile queue lengths during the morning peak hour are summarized as follows:

- Stallion Way / Bates Canyon Road:
 - Southbound: 300 feet
- West HS Access / Bates Canyon Road:
 - Eastbound: 225 feet
- Bates Canyon Road / S.R. 36:
 - Northbound: 325 feet
 - Southbound: 300 feet

F. Mitigation Measures

It is recommended that eastbound left turn lanes be installed on Bates Canyon Road for the High School Accesses. A right turn deceleration pocket on Bates Canyon Road could also be beneficial. However, this may not be possible due to limited space.

It is recommended that the southbound approach of the Stallion Way / Bates Canyon Road intersection be striped to allow separate left and right turns.

G. Mitigated Scenario

Hales Engineering completed a mitigated scenario to determine the impact of the proposed mitigation measures. As shown in Table 3, all study intersections are anticipated to operate at an acceptable level of service.

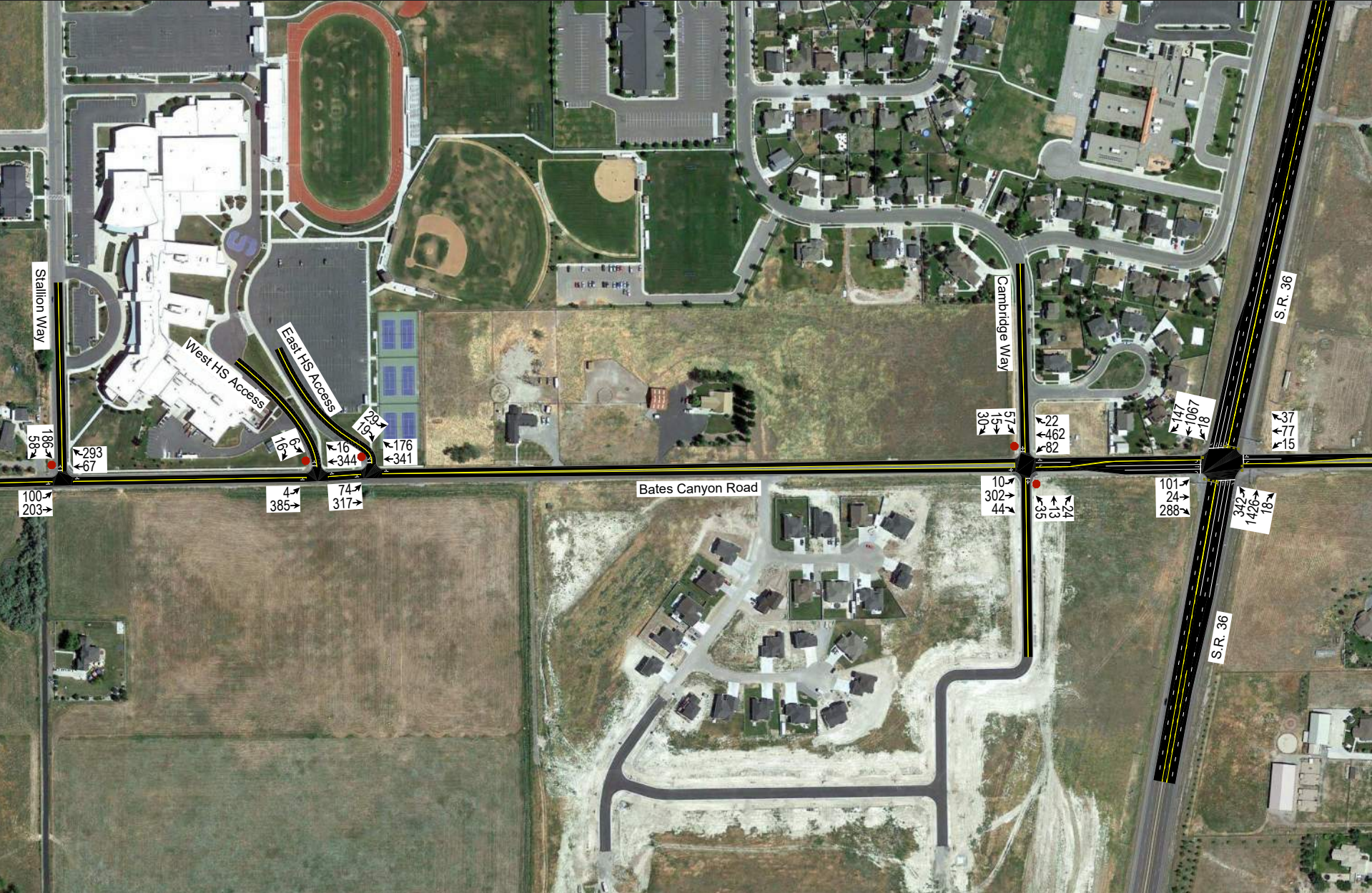


Table 2: Existing (2022) Background Morning Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	SB Stop	SBL	31.0	d
West HS Access / Bates Canyon Road	SB Stop	SBL	>50	f
East HS Access / Bates Canyon Road	SB Stop	SBL	>50	f
Cambridge Way / Bates Canyon Road	NB/SB Stop	SBT	17.4	c
Bates Canyon Road / S.R. 36	Signal	-	18.8	B

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

Table 3: Existing (2022) Mitigated Background Morning Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	SB Stop	SBL	19.4	c
West HS Access / Bates Canyon Road	SB Stop	SBL	9.7	a
East HS Access / Bates Canyon Road	SB Stop	SBL	33.5	d
Cambridge Way / Bates Canyon Road	NB/SB Stop	SBT	16.7	c
Bates Canyon Road / S.R. 36	Signal	-	18.5	B

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

III. PROJECT CONDITIONS

A. Purpose

The project conditions discussion explains the type and intensity of development. This provides the basis for trip generation, distribution, and assignment of project trips to the surrounding study intersections defined in Chapter I.

B. Project Description

The proposed Stansbury Jr. High School development is located on the south side of Bates Canyon Road, between Rabbit Lane and Stratford Drive. The development will consist of a junior high school. A concept plan for the proposed development is provided in Appendix A. The proposed land use for the development has been identified in Table 4.

Table 4: Project Land Use

Land Use	Opening Day	Capacity
Middle School	700 Students	1,200 Students

C. Trip Generation

Trip generation for the development was calculated using trip generation rates published in the Institute of Transportation Engineers (ITE), *Trip Generation*, 11th Edition, 2021. Trip generation for the proposed project is included in Table 5 and Table 6. Two trip generation scenarios were calculated for the development. Existing (2022) analysis uses the estimated number of students at opening day. Future (2027) analysis uses the number of students when the school is at capacity.

The total trip generation for the development on opening day is as follows:

- Daily Trips: 1,470
- Morning Peak Hour Trips: 470
- Afternoon Peak Hour Trips: 261

The total trip generation for the development at capacity is as follows:

- Daily Trips: 2,520
- Morning Peak Hour Trips: 804
- Afternoon Peak Hour Trips: 426

Table 5: Trip Generation Opening Day

Trip Generation Erda - Stansbury Jr. High School								
Land Use ¹	# of Units	Unit Type	Trip Generation			New Trips		
			Total	% In	% Out	In	Out	Total
Weekday Daily								
Middle School (522)	700	Students	1,470	50%	50%	735	735	1,470
Morning Peak Hour								
Middle School (522)	700	Students	470	54%	46%	254	216	470
Afternoon Peak Hour								
Middle School (522)	700	Students	261	46%	54%	120	141	261
1. Land Use Code from the Institute of Transportation Engineers (ITE) <i>Trip Generation</i> , 11th Edition, 2021.								
SOURCE: Hales Engineering, May 2022								

Table 6: Trip Generation at Capacity

Trip Generation Erda - Stansbury Jr. High School								
Land Use ¹	# of Units	Unit Type	Trip Generation			New Trips		
			Total	% In	% Out	In	Out	Total
Weekday Daily								
Middle School (522)	1,200	Students	2,520	50%	50%	1,260	1,260	2,520
Morning Peak Hour								
Middle School (522)	1,200	Students	804	54%	46%	434	370	804
Afternoon Peak Hour								
Middle School (522)	1,200	Students	426	46%	54%	196	230	426
1. Land Use Code from the Institute of Transportation Engineers (ITE) <i>Trip Generation</i> , 11th Edition, 2021.								
SOURCE: Hales Engineering, May 2022								

D. Trip Distribution and Assignment

Project traffic is assigned to the roadway network based on the type of trip and the proximity of project access points to major streets, high population densities, and regional trip attractions. Existing travel patterns observed during data collection also provide helpful guidance to establishing these distribution percentages, especially near the site. Hales Engineering also considered how distribution is expected to change as the area becomes more developed. The resulting distributions of project generated trips during the morning peak hour are shown in Table 7.

Table 7: Trip Distribution

Direction	% To/From Project	
	2022	2027
North	85%	65%
South	5%	15%
East	5%	10%
West	5%	10%

These trip distribution assumptions were used to assign the morning peak hour generated traffic at the study intersections to create trip assignment for the proposed development. Trip assignment for the development on opening day (2022) is shown in Figure 3. Trip assignment for the school at capacity, which was used for future (2027) analysis, is shown in Figure 4.

E. Access

The proposed access for the site will be gained at the following locations:

Bates Canyon Road:

- West Jr. High Access will be located approximately 650 feet east of the Stallion Way / Bates Canyon Road intersection. It will access the project on the south side of Bates Canyon Road. It is anticipated that the access will be stop-controlled.
- East Jr. High Access will be located approximately 1,200 feet east of the Stallion Way / Bates Canyon Road intersection. It will access the project on the south side of Bates Canyon Road. It is anticipated that the access will be stop-controlled.

F. Auxiliary Lanes

Auxiliary lanes are deceleration (ingress) or acceleration (egress) turn lanes that provide for safe turning movements that have less impact on through traffic. These lanes are sometimes needed at accesses or roadway intersections if right- or left-turn volumes are high enough.

Deceleration (ingress) lanes are generally needed when there are at least 50 right-turn vehicles or 25 left-turn vehicles in an hour. These guidelines were used for the City roadways in the study area.

Based on these guidelines and the anticipated project traffic, it is recommended that the following deceleration (ingress) lanes be installed:

- East Jr. High Access / Bates Canyon Road: Eastbound right-turn and westbound left-turn

These recommendations were assumed for the existing (2022) plus project scenario.





G. On-Site Queuing Analysis

There is one parent pick-up / drop-off zone along the east side of the school. The on-site circulation and queuing analysis was completed in VISSIM to closely represent the on-site out-loading conditions. Multiple runs were used to provide a statistical evaluation of the site circulation operations. Two scenarios were completed, one which assumed an enrollment of 1200 students and one that assumed an enrollment of 700 students. Both scenarios assumed that all students are dismissed at the same time. The afternoon peak hour was analyzed since it has been observed at schools that picking up students takes longer than dropping them off.

According to the current plans, it is anticipated that Stansbury Jr. High will have a drop off area of about 500 feet. Assuming an enrollment of 700 Students, the 95th percentile maximum queue length during the afternoon peak hour was found to be approximately 630 linear feet, 130 feet beyond the drop-off area. Assuming an enrollment of 1,200 students, the 95th percentile maximum queue length during the afternoon peak hour was found to be approximately 1,230 linear feet, 730 feet beyond the drop-off area.

Based on this analysis, it is anticipated that the site will have nearly enough storage length for opening day conditions with some traffic spilling out onto the east school access road. It is anticipated that there could be significant queueing issues if the school reaches its enrollment capacity or close to it. Hales Engineering recommends that queuing lanes with a total linear queue storage length of at least 1,230 feet be implemented to ensure proper circulation and avoid backing into Bates Canyon Road. This could be accomplished by wrapping double-stacked vehicle queues around the perimeter of the parking lot during pick-up times or by allowing parents to pick up students within the parking lot east of the pick-up/drop-off area. The school could consider using cones, striping, signing and/or staff to direct queuing vehicles.

IV. EXISTING (2022) PLUS PROJECT CONDITIONS

A. Purpose

The purpose of the existing (2022) plus project analysis is to study the intersections and roadways during the peak travel periods of the day for existing background traffic and geometric conditions plus the net trips generated by the proposed development. This scenario provides valuable insight into the potential impacts of the proposed project on background traffic conditions.

B. Traffic Volumes

Hales Engineering added the project trips discussed in Chapter III to the existing (2022) background traffic volumes to predict turning movement volumes for existing (2022) plus project conditions. Existing (2022) plus project morning peak hour turning movement volumes are shown in Figure 5.

C. Level of Service Analysis

Hales Engineering determined that the following intersections are anticipated to operate at a poor level of service during the morning peak hour with project traffic added, as shown in Table 8:

- Stallion Way / Bates Canyon Road
- East HS Access / Bates Canyon Road
- Cambridge Way / Bates Canyon Road

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Significant 95th percentile queue lengths during the morning peak hour are summarized as follows:

- | | |
|---|--|
| <ul style="list-style-type: none">• Stallion Way / Bates Canyon Road:<ul style="list-style-type: none">○ Southbound: 800 feet• Cambridge Way / Bates Canyon Road:<ul style="list-style-type: none">○ Southbound: 575 feet○ Eastbound: 750 feet○ Northbound: 300 feet | <ul style="list-style-type: none">• S.R. 36 / Bates Canyon Road:<ul style="list-style-type: none">○ Northbound: 725 feet○ Eastbound: 575 feet |
|---|--|

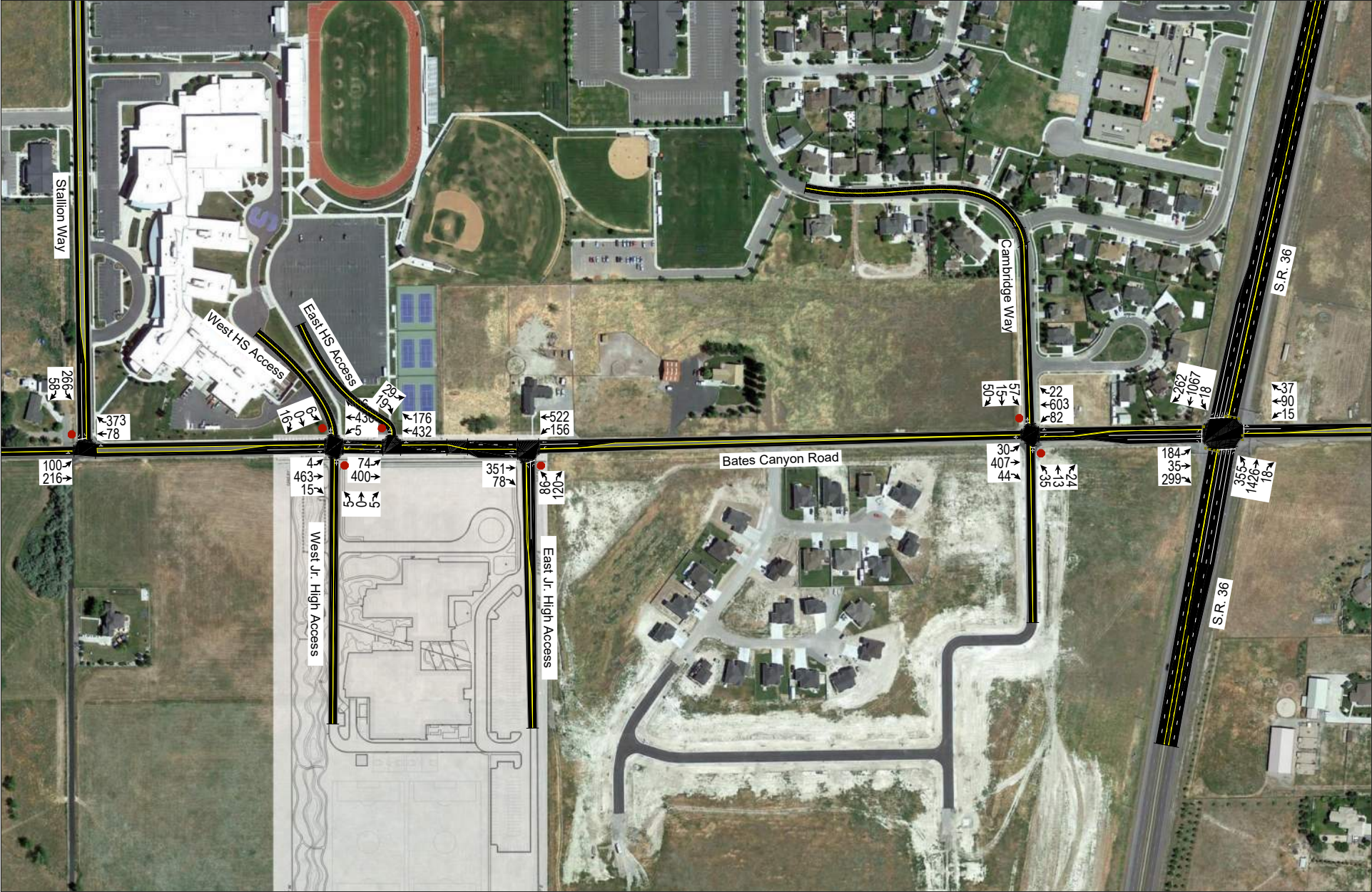


Table 8: Existing (2022) Plus Project Morning Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	SB Stop	SBL	>50	f
West Jr. High & HS Access / Bates Canyon Road	Signal	SBL	21.3	c
East HS Access / Bates Canyon Road	SB Stop	SBL	30.3	d
East Jr. High Access / Bates Canyon Road	EB/WB Stop	NBL	16.1	c
Cambridge Way / Bates Canyon Road	NB/SB Stop	SBL	>50	f
Bates Canyon Road / S.R. 36	Signal	-	35.7	D

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

F. Mitigation Measures

The following improvements are recommended for opening day conditions:

- Install eastbound left and westbound right-turn lanes at the Stallion Way / Bates Canyon Road intersection
- Install a two-way left-turn lane along Bates Canyon Road from Stallion Way to Cambridge Way to help cars turning left in and out of school accesses.
- Install northbound, eastbound, and southbound left-turn lanes at the Cambridge Way / Bates Canyon Road intersection
- Optimize signal splits at the Bates Canyon Road / S.R. 36 intersection

G. Mitigated Scenario

Hales Engineering completed a mitigated scenario to determine the impact of the proposed mitigation measures. As shown in Table 9, it is anticipated that all study intersections will operate at an acceptable level of service with the proposed improvements.

Table 9: Existing (2022) Mitigated Plus Project Morning Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	SB Stop	SBL	22.1	c
West Jr. High & HS Access / Bates Canyon Road	Signal	SBL	24.7	c
East HS Access / Bates Canyon Road	SB Stop	SBL	30.6	d
East Jr. High Access / Bates Canyon Road	EB/WB Stop	NBL	17.6	c
Cambridge Way / Bates Canyon Road	NB/SB Stop	SBL	32.6	d
Bates Canyon Road / S.R. 36	Signal	-	24.6	C

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

V. FUTURE (2027) BACKGROUND CONDITIONS

A. Purpose

The purpose of the future (2027) background analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions. Through this analysis, future background traffic operational deficiencies can be identified, and potential mitigation measures recommended.

B. Roadway Network

According to the Tooele County Transportation Plan, there are no projects planned before 2027 in the study area. Therefore, no changes were made to the roadway network for the future (2027) analysis.

C. Traffic Volumes

Hales Engineering calculated future (2027) forecasted volumes using UDOT's annual average daily traffic (AADT) history. Based on the AADT on S.R. 36, it was determined that on average traffic volumes are increased by about 3% each year. This growth rates was applied to estimate future (2027) background volumes. Future (2027) morning peak hour turning movement volumes are shown in Figure 6.

D. Level of Service Analysis

Hales Engineering determined that the following intersections are anticipated to operate at a poor level of service during the morning peak hour in future (2027) background conditions as shown in Table 10:

- Stallion Way / Bates Canyon Road
- Cambridge Way / Bates Canyon Road

These results serve as a baseline condition for the impact analysis of the proposed development for future (2027) conditions.

E. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Significant 95th percentile queue lengths during the morning peak hour are summarized as follows:

- | | |
|-------------------------------------|---------------------------|
| • Stallion Way / Bates Canyon Road: | • Bates Canyon / S.R. 36: |
| ○ Southbound: 475 feet | ○ Northbound: 375 feet |
| | ○ Southbound: 375 feet |



Table 10: Future (2027) Background Morning Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	SB Stop	SBL	>50	f
West HS Access / Bates Canyon Road	SB Stop	SBL	10.4	b
East HS Access / Bates Canyon Road	SB Stop	SBL	27.3	d
Cambridge Way / Bates Canyon Road	NB/SB Stop	SBL	35.4	e
Bates Canyon Road / S.R. 36	Signal	-	24.8	C

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

F. Mitigation Measures

It is recommended that a two-way left-turn lane be installed along Bates Canyon Road from Stallion way to Cambridge Way to accommodate left-turns at intersections and help cars turning left out of the High School accesses.

It is recommended that the Stallion Way / Bates Canyon Road intersection be converted to an all way stop-controlled intersection.

It is recommended that northbound, southbound, and eastbound left-turn lanes be installed at the Cambridge Way / Bates Canyon Road intersection.

G. Mitigated Scenario

Hales Engineering completed a mitigated scenario to determine the impact of the proposed mitigation measures. As shown in Table 11, it is anticipated that all study intersections will operate at an acceptable level of service with the proposed improvements.

Table 11: Future (2027) Mitigated Background Morning Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	AWSC	-	8.2	A
West HS Access / Bates Canyon Road	SB Stop	SBL	8.2	a
East HS Access / Bates Canyon Road	SB Stop	SBL	34.8	d
Cambridge Way / Bates Canyon Road	NB/SB Stop	SBL	27.1	d
Bates Canyon Road / S.R. 36	Signal	-	26.3	C

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

VI. FUTURE (2027) PLUS PROJECT CONDITIONS

A. Purpose

The purpose of the future (2027) plus project analysis is to study the intersections and roadways during the peak travel periods of the day for future background traffic and geometric conditions plus the net trips generated by the proposed development. This scenario provides valuable insight into the potential impacts of the proposed project on future background traffic conditions.

B. Traffic Volumes

Hales Engineering added the project at capacity trips discussed in Chapter III to the future (2027) background traffic volumes to predict turning movement volumes for future (2027) plus project conditions. Future (2027) plus project morning peak hour turning movement volumes are shown in Figure 7.

C. Level of Service Analysis

Hales Engineering determined that the following intersections are anticipated to operate at a poor level of service during the morning peak hour when the school is at full capacity in future (2027) plus project conditions, as shown in Table 12:

- Stallion Way / Bates Canyon Road
- West Jr. High & HS Access / Bates Canyon Road
- East HS Access / Bates Canyon Road
- East Jr. High Access / Bates Canyon Road
- Cambridge Way / Bates Canyon Road

D. Queuing Analysis

Hales Engineering calculated the 95th percentile queue lengths for each of the study intersections. Significant 95th percentile queue lengths during the morning peak hour are summarized as follows:

- | | |
|--|---|
| <ul style="list-style-type: none">• Stallion Way / Bates Canyon Road:<ul style="list-style-type: none">○ Eastbound: 350 feet○ Southbound: 625 feet• West Jr. High & HS Access / Bates Canyon Road:<ul style="list-style-type: none">○ Eastbound: 250 feet• Bates Canyon Road / S.R. 36<ul style="list-style-type: none">○ Northbound: 675 feet○ Southbound: 750 feet○ Eastbound: 575 feet | <ul style="list-style-type: none">• East Jr. High Access / Bates Canyon Road<ul style="list-style-type: none">○ Northbound: 825 feet• Cambridge Way / Bates Canyon Road<ul style="list-style-type: none">○ Southbound: 750 feet○ Eastbound: >1,000 feet○ Northbound: 600 feet |
|--|---|

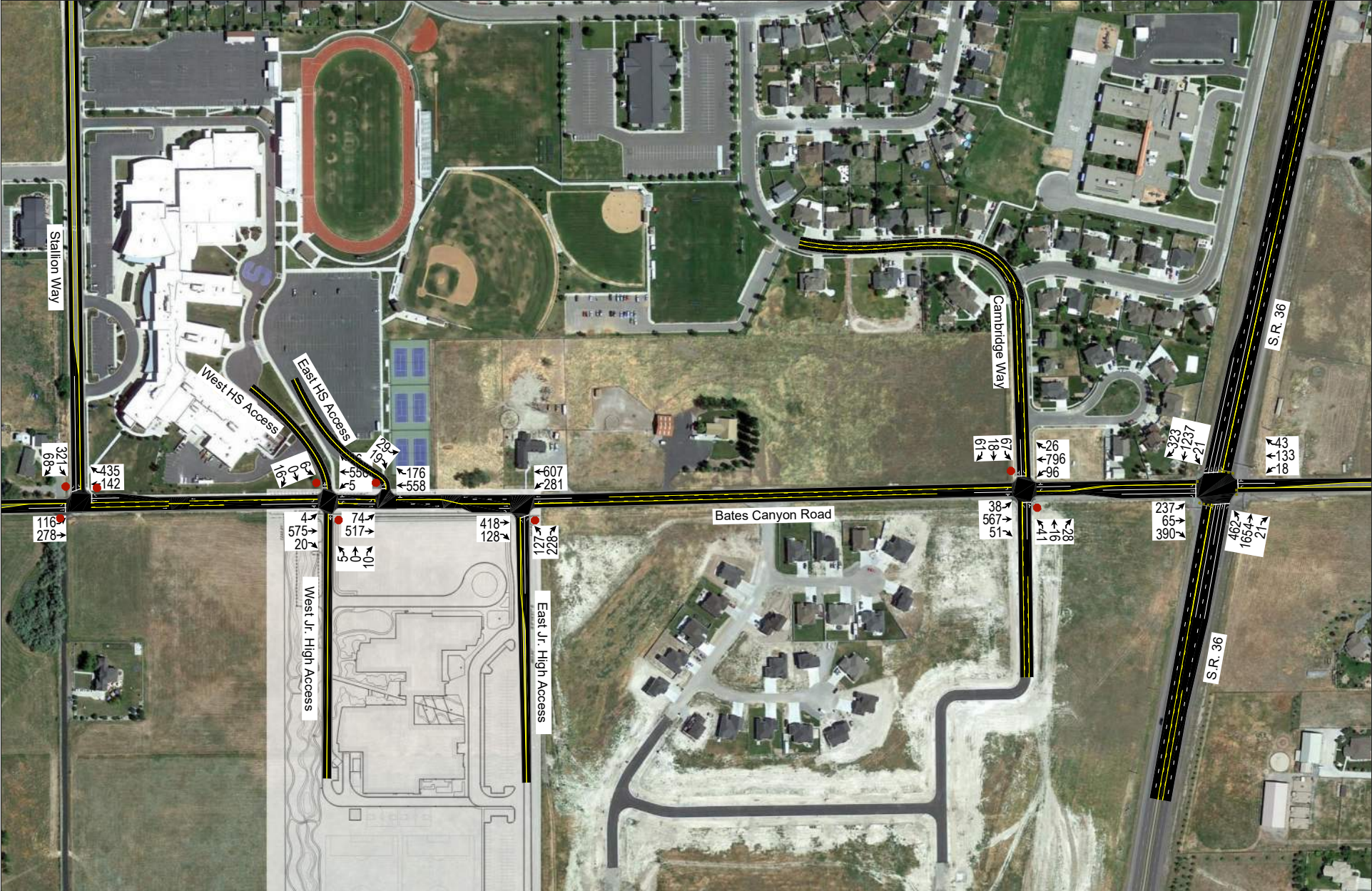


Table 12: Future (2027) Plus Project Morning Peak Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	SB Stop	SBL	>50	f
West Jr. High & HS Access / Bates Canyon Road	NB/SB Stop	SBL	>50	f
East HS Access / Bates Canyon Road	SB Stop	SBL	45.1	e
East Jr. High Access / Bates Canyon Road	NB Stop	NBL	>50	f
Cambridge Way / Bates Canyon Road	NB/SB Stop	SBL	>50	f
Bates Canyon Road / S.R. 36	Signal	-	48.4	D

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

E. Mitigation Measures

Several issues arise when analyzing a worst-case scenario of Stansbury Jr. High School reaching its capacity. The following roadway improvements are recommended to mitigate level of service and queueing issues for this worst-case scenario.

It is recommended that Bates Canyon Road be widened to a 5-lane road from Stallion Way to S.R. 36. Based on the plans for the school it is anticipated that this width can be accommodated on Bates Canyon Road if some of the lanes are narrowed to 11-foot widths.

It is recommended that the East High School Access be striped to allow separate southbound left and right turns.

It is anticipated that with Stansbury Jr. High at full capacity, a traffic signal could be warranted at the East Jr. High Access / Bates Canyon Road intersection during the morning peak hour. However, since a signal would most likely not be necessary at all hours of the day, Hales Engineering recommends a roundabout be considered at this intersection.

It is recommended that dual northbound left-turn lanes be installed at the Bates Canyon Road / S.R. 36 intersection. It is also recommended that an overlap phase signal be implemented for the eastbound right turns at this intersection.

F. Mitigated Scenario

Hales Engineering completed a mitigated scenario to determine the impact of the proposed mitigation measures. As shown in Table 13, it is anticipated that all study intersections will operate at an acceptable level of service with the proposed improvements.

Table 13: Future (2027) Mitigated Plus Project Morning Hour LOS

Intersection		Level of Service		
Description	Control	Movement ¹	Aver. Delay (Sec. / Veh.)	LOS ²
Stallion Way / Bates Canyon Road	SB Stop	-	16.9	C
West Jr. High & HS Access / Bates Canyon Road	NB/SB Stop	SBL	22.1	c
East HS Access / Bates Canyon Road	SB Stop	SBL	34.7	d
East Jr. High Access / Bates Canyon Road	NB Stop	-	5.5	A
Cambridge Way / Bates Canyon Road	NB/SB Stop	NBL	35.0	d
Bates Canyon Road / S.R. 36	Signal	-	31.7	C

1. Movement indicated for unsignalized intersections where delay and LOS represents worst movement. SBL = Southbound left movement, etc.

2. Uppercase LOS used for signalized, roundabout, and AWSC intersections. Lowercase LOS used for all other unsignalized intersections.

Source: Hales Engineering, May 2022

G. Recommended Storage Lengths

Hales Engineering determined recommended storage lengths based on the 95th percentile queue lengths given in the future (2027) plus project scenario. These storage lengths do not include the taper length. Recommended storage lengths for the study intersections are shown in Table 14. Intersections shown in Table 14 include new intersections and existing intersections that have recommended storage length changes.

Table 14: Recommended Storage Lengths

Intersection		Recommended Storage Lengths (feet)															
		Northbound				Southbound				Eastbound				Westbound			
		LT		RT		LT		RT		LT		RT		LT		RT	
		E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P
1	Stallion Way / Bates Canyon Road	-	-	-	-	-	200	-	200	-	100	-	-	-	-	-	100
3	East HS Access / Bates Canyon Road	-	-	-	-	-	100	-	100	-	50	-	-	-	-	-	-
4	East Jr. High Access / Bates Canyon Road	100	200	100	200	-	-	-	-	-	-	-	-	-	-	-	-
5	Cambridge Way / Bates Canyon Road	-	100	-	100	-	100	-	100	-	-	-	-	-	-	-	-
6	Bates Canyon Road / S.R. 36	650	650	250	250	300	300	300	300	250	250	200	200	50	100	-	100

1. Storage lengths are based on 2027 95th percentile queue lengths and do not include required deceleration / taper distances

2. E = Existing storage length (approximate), if applicable; P = proposed storage length for new turn lanes or changes to existing turn lanes, if applicable

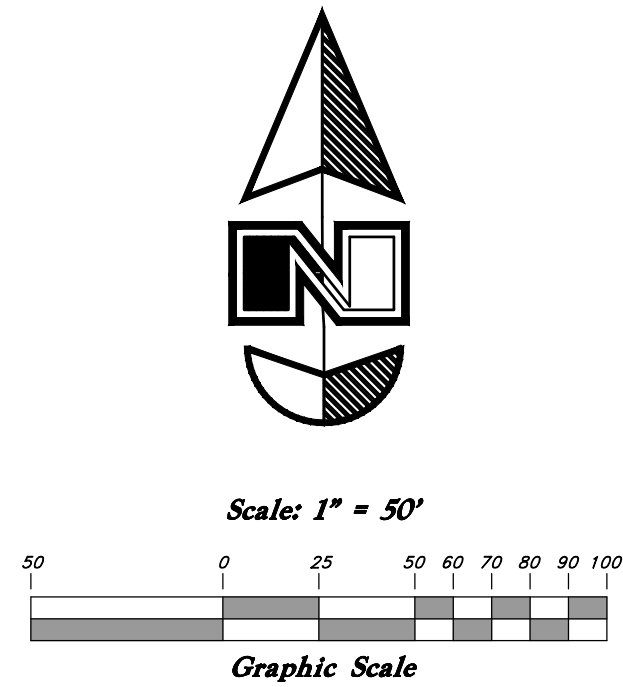
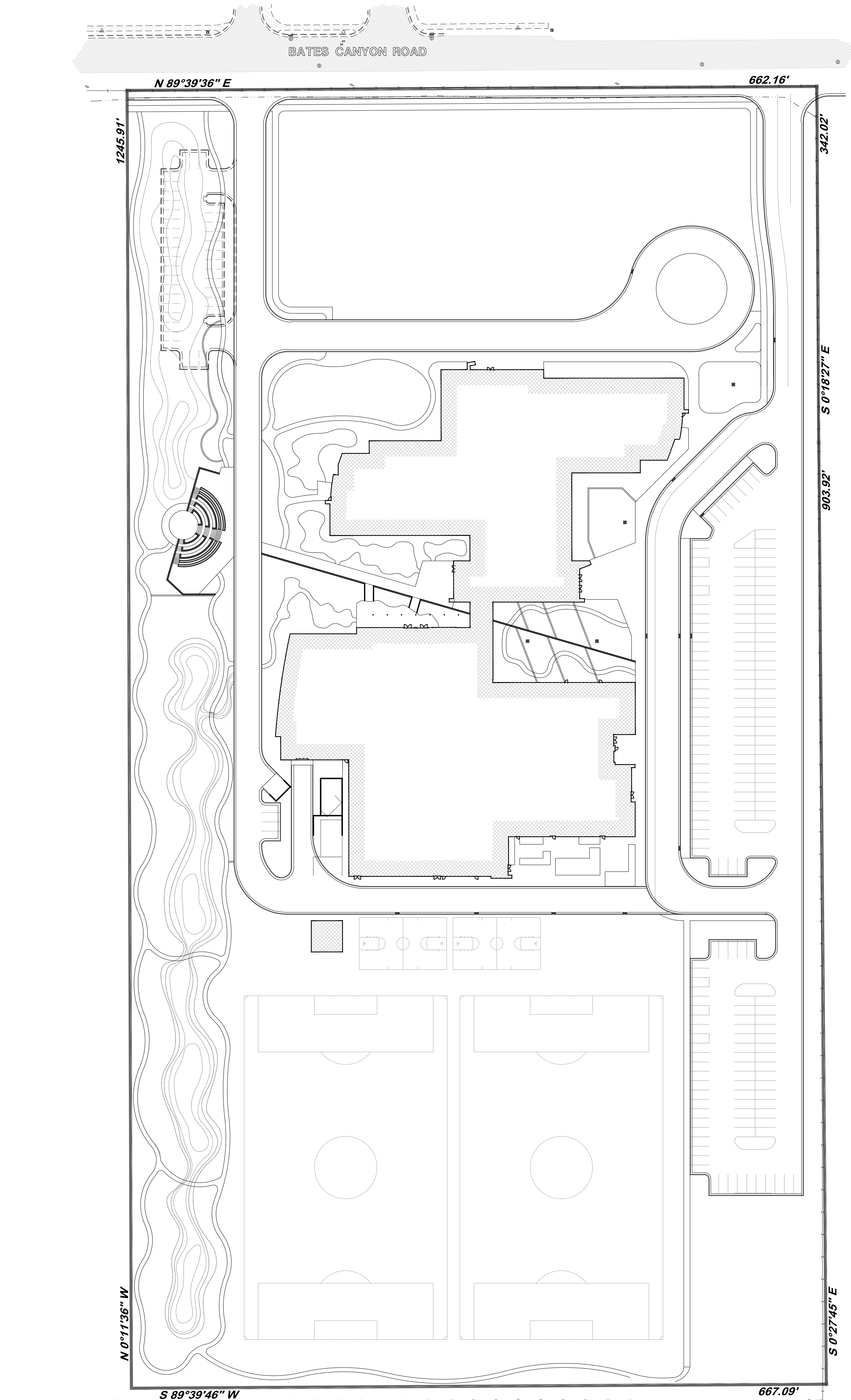
Source: Hales Engineering, May 2022

APPENDIX A

Site Plan



MHTN ARCHITECTS, INC.
420 East South Temple
Suite 100
Salt Lake City, Utah 84111
Telephone (801) 595-6700
Telefax (801) 595-6717
www.mhtn.com



Legend

(Note: All items may not appear on drawing)

- San. Sewer Manhole
- Water Manhole
- Storm Drain Manhole
- Cleanout
- Electrical Manhole
- Catch Basins
- Exist. Fire Hydrant
- Fire Hydrant
- Exist. Water Valve
- Water Valve
- Culinary Water
- Gas Line
- Irrigation Line
- Storm Drain
- Telephone Line
- Secondary Waterline
- Power Line
- Fire Line
- Land Drain
- Power pole
- Power pole w/guy
- Light Pole
- Flowline of ditch
- Overhead Power line
- Corrugated Metal Pipe
- Concrete Pipe
- Reinforced Concrete Pipe
- Ductile Iron
- Polyvinyl Chloride
- Top of Asphalt
- Edge of Asphalt
- Centerline
- Flowline
- Finish Floor
- Top of Curb
- Top of Wall
- Top of Walk
- Top of Concrete
- Natural Ground
- Finish Grade
- Match Existing
- Fire Department Connection
- Finish Contour
- Exist. Contour
- Finish Grade
- Exist. Grade
- Ridge Line
- Direction of Flow
- Existing Asphalt
- New Asphalt
- Heavy Duty Asphalt
- Existing Concrete
- New Concrete
- Spill Curb & Gutter
- Demo Tree

- GENERAL SITE NOTES:
- Stalls designated as handicap will require a painted handicap symbol and sign. (See Details)
 - Fire lane markings and signs to be installed as directed by the Fire Marshall.
 - Asile markings, directional arrows and stop bars will be painted at each driveway as shown on the plans.
 - Building sidewalks, ramps, and bollards are building contractor responsible items. See architectural plans.
 - All dimensions are to back of curb unless otherwise noted.

PRIVATE ENGINEER'S NOTICE TO CONTRACTORS

The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property, that this requirement shall apply continuously and not be limited to normal working hours; and that the contractor shall defend, indemnify, and hold the owner and the engineer harmless from any and all liability, real or alleged, in connection with the performance of work on this project, excepting for liability arising from the sole negligence of the owner or the engineer.

ALL CONSTRUCTION TO CONFORM TO CITY STANDARDS AND SPECIFICATIONS IN RIGHT OF WAY

STANSBURY JUNIOR HIGH SCHOOL

5300 N STALLION WAY
STANSBURY PARK, UT 84074

MHTN PROJECT NO. XXXXX

DRAWN BY: BN

CHECKED BY: MB

ISSUED:

NO.	DATE	DESCRIPTION

REVISIONS:

NO.	DATE	DESCRIPTION

PROJECT NO. 2018XXX

DATE: DATE

SHEET NUMBER

Overall Site Plan

SHEET NUMBER

CS100

SHEET REFERENCE

RETURN TO INDEX

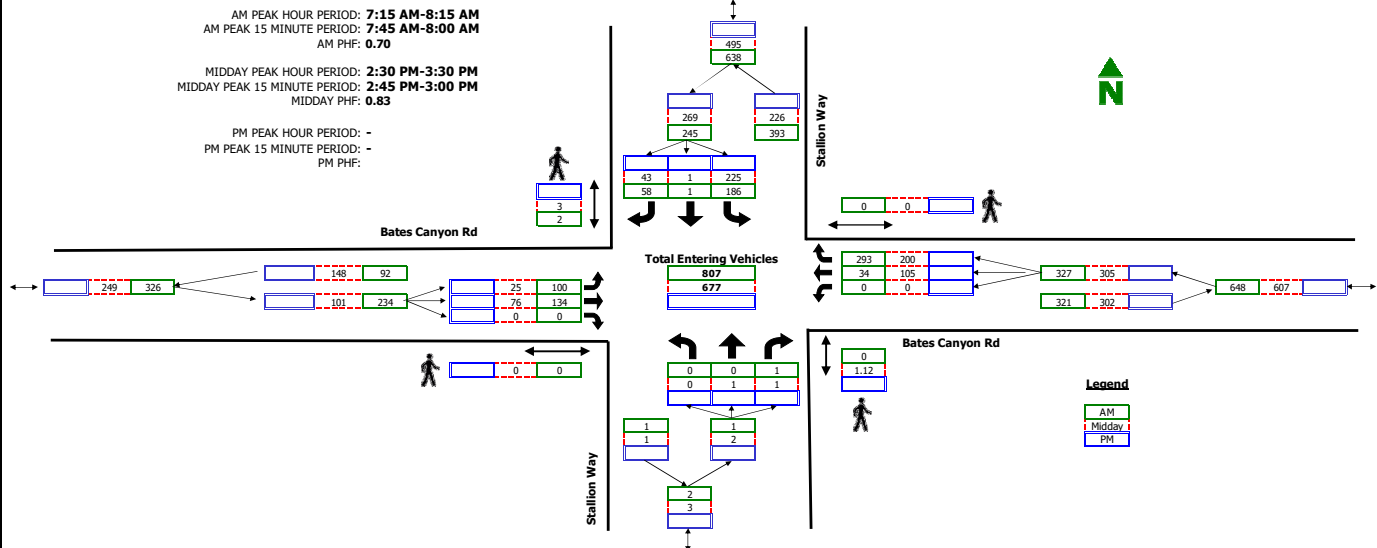
APPENDIX B

Turning Movement Counts

Intersection: Stallion Way / Bates Canyon Rd
North/South: Stallion Way
East/West: Bates Canyon Rd
Jurisdiction: Erda
Project Title: Erda Stansbury Jr. High School TIS
Project No: 2191
Weather: Clear

Date:
Day of Week Adjustment:
Month of Year Adjustment:
Adjustment Station #:
Covid Adjustment:

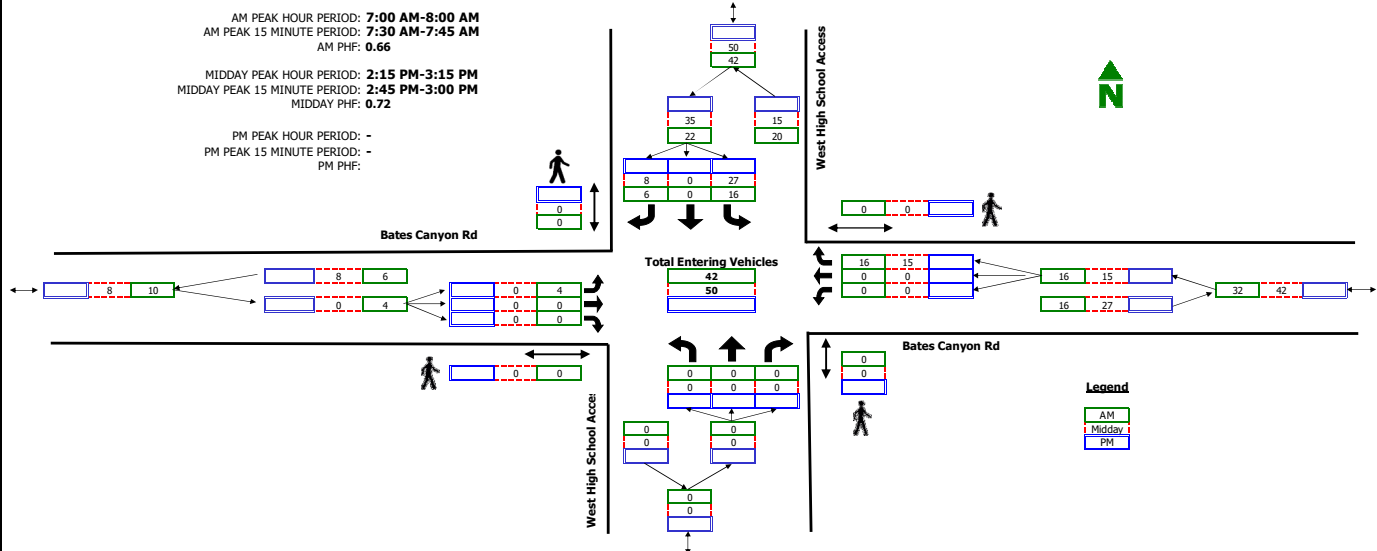
4-20-22, Wed
100.0%
100.0%
615
12.0%

[illegible]

Intersection: West High School Access / Bates Canyon Rd
North/South: West High School Access
East/West: Bates Canyon Rd
Jurisdiction: Erda
Project Title: Erda Stansbury Jr. High School TIS
Project No: 2191
Weather: Clear

Date:
Day of Week Adjustment:
Month of Year Adjustment:
Adjustment Station #:
Growth Rate:

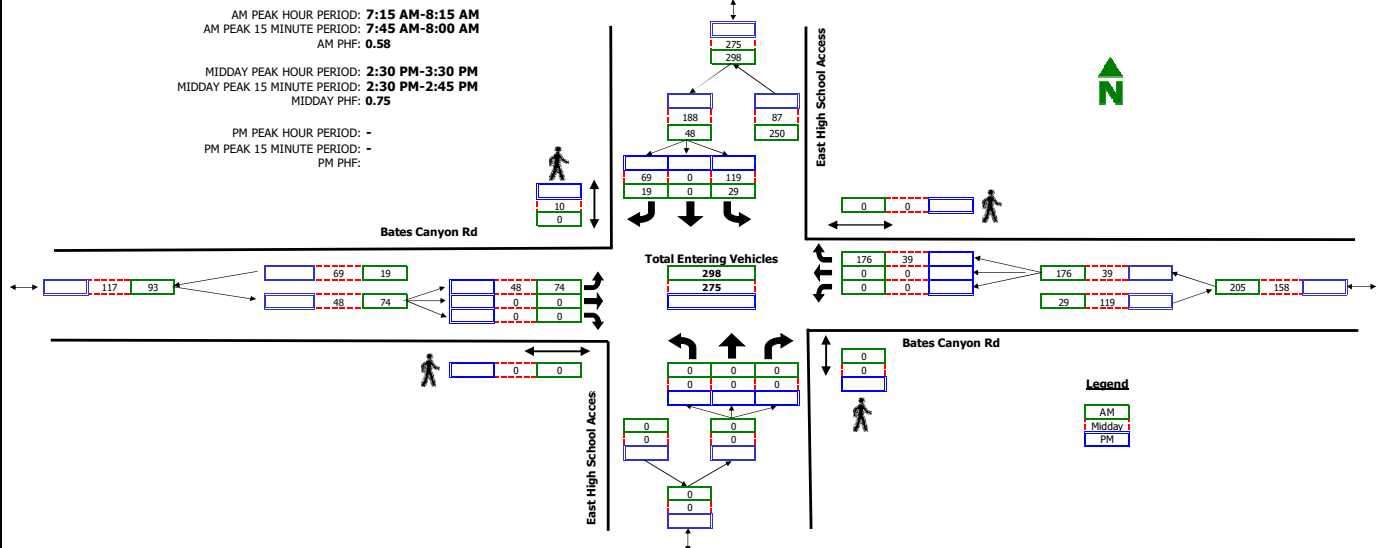
4-20-22, Wed
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615
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[illegible]

Intersection: East High School Access / Bates Canyon Rd
North/South: East High School Access
East/West: Bates Canyon Rd
Jurisdiction: Erda
Project Title: Erda Stansbury Jr. High School TIS
Project No:
Weather: 2191

Date:
Day of Week Adjustment:
Month of Year Adjustment:
Adjustment Station #:
Growth Rate:

4-20-22, Wed
100.0%
100.0%
615
12.0%

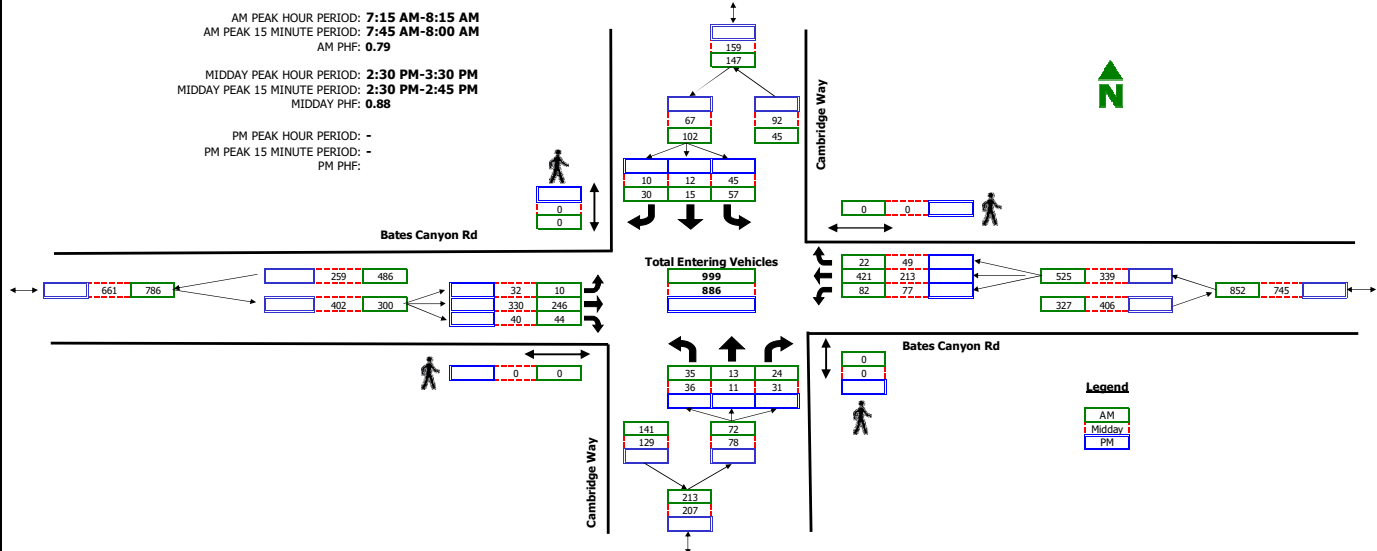


RAW COUNT SUMMARIES	East High School Access				East High School Access				Bates Canyon Rd				Bates Canyon Rd				TOTAL
	Northbound				Southbound				Eastbound				Westbound				
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00 - 7:15	0	0	0	0	0	0	0	2	1	0	0	0	0	0	5	1	8
7:15 - 7:30	0	0	0	0	1	0	0	0	2	0	0	0	0	0	15	0	18
7:30 - 7:45	0	0	0	0	7	0	4	0	20	0	0	0	0	0	37	0	68
7:45 - 8:00	0	0	0	0	11	0	8	0	30	0	0	0	0	0	79	0	128
8:00 - 8:15	0	0	0	0	7	0	5	0	14	0	0	0	0	0	26	0	52
8:15 - 8:30	0	3	0	0	2	0	0	0	3	0	0	0	0	4	0	0	9
8:30 - 8:45	0	0	0	0	0	0	3	0	1	0	0	0	0	0	3	0	7
8:45 - 9:00	0	0	0	0	2	0	0	0	4	0	0	0	0	0	5	0	11
MIDDAY PERIOD COUNTS																	
Period:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 - 9:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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10:30 - 10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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15:45 - 16:00	0	0	0	0	2	0	7	0	4	0	0	0	0	0	2	1	15
PM PERIOD COUNTS																	
Period:	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection: Cambridge Way / Bates Canyon Rd
North/South: Cambridge Way
East/West: Bates Canyon Rd
Jurisdiction: Erda
Project Title: Erda Stansbury Jr. High School TIS
Project No: 2191
Weather: Clear

Date:
Day of Week Adjustment:
Month of Year Adjustment:
Adjustment Station #:
Growth Rate:

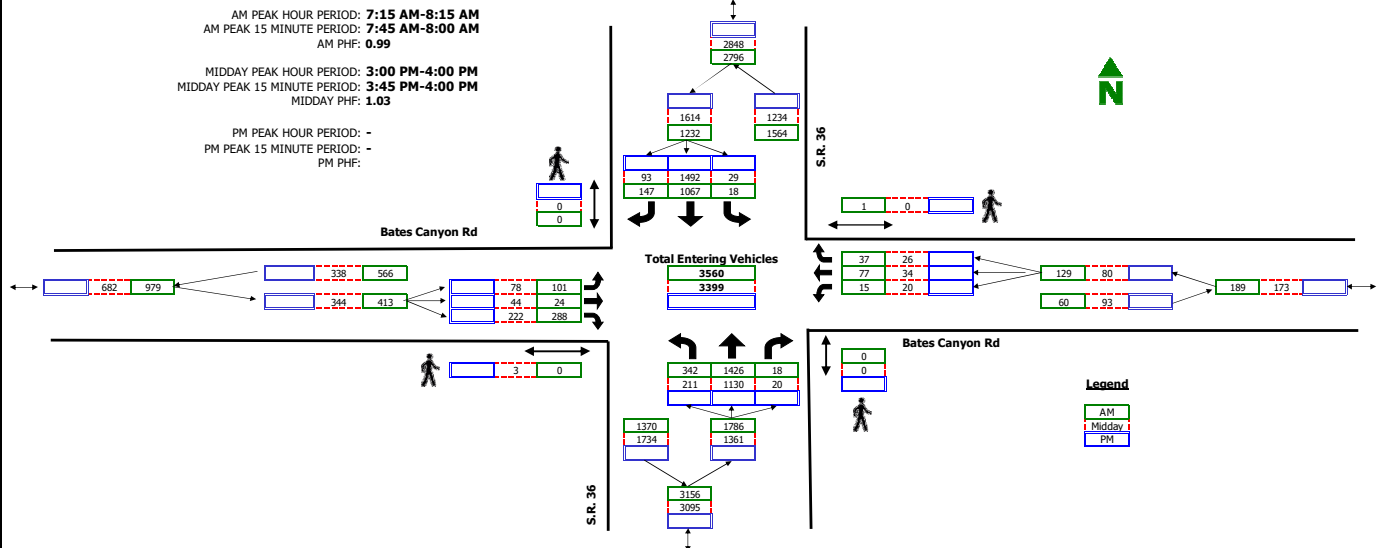
4-20-22, Wed
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615
12.0%



RAW COUNT SUMMARIES	Cambridge Way Northbound				Cambridge Way Southbound				Bates Canyon Rd Eastbound				Bates Canyon Rd Westbound				TOTAL
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
AM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
7:00 - 7:15	1	2	4	0	5	1	0	0	0	13	5	0	14	17	7	0	71
7:15 - 7:30	3	2	8	0	6	5	3	0	2	41	7	0	20	55	2	0	154
7:30 - 7:45	11	2	1	0	15	3	4	0	1	58	10	0	12	103	4	0	224
7:45 - 8:00	5	3	3	0	16	4	19	0	3	67	13	0	19	158	7	0	317
8:00 - 8:15	12	5	9	0	14	1	1	0	3	54	9	0	22	60	7	0	197
8:15 - 8:30	9	1	4	1	13	1	1	0	3	32	0	0	19	24	11	0	127
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8:45 - 9:00	5	5	8	0	22	5	13	0	10	22	6	0	11	32	12	0	151
MIDDAY PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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12:15 - 12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	5	2	12	0	5	2	2	0	4	25	6	0	17	35	10	0	125
14:15 - 14:30	7	3	6	0	11	2	1	0	2	36	8	0	16	57	9	0	151
14:30 - 14:45	6	1	6	0	11	2	2	0	11	125	11	0	14	47	15	0	221
14:45 - 15:00	10	4	11	0	8	2	1	0	9	86	12	0	18	58	11	0	230
15:00 - 15:15	9	2	7	0	9	4	2	0	6	46	9	0	12	40	7	0	153
15:15 - 15:30	7	3	4	0	12	3	4	0	3	38	4	0	25	45	11	0	159
15:30 - 15:45	5	3	7	0	10	1	2	0	1	30	7	0	18	43	10	0	139
15:45 - 16:00	5	7	11	0	18	1	3	0	5	35	9	0	22	36	14	0	166
PM PERIOD COUNTS																	
Period	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection: S.R. 36 / Bates Canyon Rd
North/South: S.R. 36
East/West: Bates Canyon Rd
Jurisdiction: Erda
Project Title: Erda Stansbury Jr. High School TIS
Project No: 2191
Weather: Clear

Date:	4-20-22, Wed
Day of Week Adjustment:	100.0%
Month of Year Adjustment:	100.0%
Adjustment Station #:	615
Growth Rate:	12.0%

[illegible]

APPENDIX C

LOS Results

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	186	184	99	31.0	D
	R	58	62	106	26.2	D
	Subtotal	244	246	101	29.8	D
EB	L	100	103	103	5.8	A
	T	203	204	100	3.0	A
	Subtotal	303	307	101	3.9	A
WB	T	74	74	100	3.3	A
	R	293	297	101	1.7	A
	Subtotal	367	371	101	2.0	A
Total		914	924	101	10.1	B

Intersection: Bates Canyon Road & West HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	6	6	100	69.4	F
	R	16	17	108	23.3	C
	Subtotal	22	23	105	35.3	E
EB	L	4	3	80	15.7	C
	T	394	392	99	8.0	A
	Subtotal	398	395	99	8.1	A
WB	T	363	367	101	1.0	A
	R	16	14	89	0.3	A
	Subtotal	379	381	101	1.0	A
Total		798	799	100	5.5	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	29	100	78.0	F
	R	19	21	112	57.1	F
	Subtotal	48	50	104	69.2	F
EB	L	74	75	101	9.0	A
	T	338	337	100	3.4	A
	Subtotal	412	412	100	4.4	A
WB	T	406	405	100	4.1	A
	R	176	177	100	2.9	A
	Subtotal	582	582	100	3.7	A
Total		1,042	1,044	100	7.1	A

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	35	35	100	16.0	C
	T	13	12	92	16.0	C
	R	24	21	88	7.3	A
	Subtotal	72	68	94	13.3	B
SB	L	57	56	98	15.7	C
	T	15	14	92	17.4	C
	R	30	30	101	9.4	A
	Subtotal	102	100	98	14.0	B
EB	L	10	10	100	5.5	A
	T	338	332	98	2.5	A
	R	44	44	100	1.7	A
	Subtotal	392	386	98	2.5	A
WB	L	82	80	97	4.9	A
	T	499	493	99	1.8	A
	R	22	22	100	1.3	A
	Subtotal	603	595	99	2.2	A
Total		1,169	1,149	98	4.0	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: S.R. 36 & Bates Canyon Road
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	342	335	98	46.4	D
	T	1,426	1,428	100	8.2	A
	R	18	16	89	1.1	A
	Subtotal	1,786	1,779	100	15.3	B
SB	L	18	18	100	28.4	C
	T	1,067	1,067	100	18.1	B
	R	147	148	101	6.6	A
	Subtotal	1,232	1,233	100	16.9	B
EB	L	101	99	98	66.7	E
	T	41	39	96	25.2	C
	R	288	278	97	18.5	B
	Subtotal	430	416	97	30.6	C
WB	L	15	15	100	48.7	D
	T	77	77	100	50.0	D
	R	37	36	97	30.1	C
	Subtotal	129	128	99	44.3	D
Total		3,577	3,556	99	18.8	B

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
 Analysis Period: Existing (2022) Mitigated Background
 Time Period: Morning Peak Hour
 Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
 Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	186	183	99	19.4	C
	R	58	61	105	3.6	A
	Subtotal	244	244	100	15.5	C
EB	L	100	100	100	6.5	A
	T	203	194	96	3.2	A
	Subtotal	303	294	97	4.3	A
WB	T	74	72	97	3.4	A
	R	293	286	98	1.6	A
	Subtotal	367	358	98	2.0	A
Total		914	896	98	6.4	A

Intersection: Bates Canyon Road & West HS Access
 Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	6	5	83	9.7	A
	R	16	14	89	4.2	A
	Subtotal	22	19	86	5.6	A
EB	L	4	3	80	4.7	A
	T	394	382	97	1.1	A
	Subtotal	398	385	97	1.1	A
WB	T	363	356	98	0.9	A
	R	16	14	89	0.3	A
	Subtotal	379	370	98	0.9	A
Total		798	774	97	1.1	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Mitigated Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	27	93	33.5	D
	R	19	21	112	22.8	C
	Subtotal	48	48	100	28.8	D
EB	L	74	72	97	11.3	B
	T	338	328	97	0.2	A
	Subtotal	412	400	97	2.2	A
WB	T	406	398	98	4.0	A
	R	176	175	99	2.8	A
	Subtotal	582	573	98	3.6	A
Total		1,042	1,021	98	4.3	A

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	35	35	100	14.5	B
	T	13	13	100	15.6	C
	R	24	25	104	6.4	A
	Subtotal	72	73	101	11.9	B
SB	L	57	57	100	15.4	C
	T	15	16	105	16.7	C
	R	30	28	94	8.5	A
	Subtotal	102	101	99	13.7	B
EB	L	10	10	100	5.3	A
	T	338	330	98	1.8	A
	R	44	43	98	1.2	A
	Subtotal	392	383	98	1.8	A
WB	L	82	79	96	4.5	A
	T	499	486	97	1.9	A
	R	22	24	109	1.3	A
	Subtotal	603	589	98	2.2	A
Total		1,169	1,146	98	3.7	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Mitigated Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: S.R. 36 & Bates Canyon Road
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	342	323	94	48.4	D
	T	1,426	1,428	100	8.3	A
	R	18	17	94	1.2	A
	Subtotal	1,786	1,768	99	15.6	B
SB	L	18	15	83	29.3	C
	T	1,067	1,048	98	16.7	B
	R	147	153	104	5.8	A
	Subtotal	1,232	1,216	99	15.5	B
EB	L	101	98	97	72.9	E
	T	41	38	93	25.1	C
	R	288	286	99	16.3	B
	Subtotal	430	422	98	30.2	C
WB	L	15	14	93	55.9	E
	T	77	77	100	49.3	D
	R	37	35	95	29.4	C
	Subtotal	129	126	98	44.5	D
Total		3,577	3,532	99	18.5	B

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	266	262	98	91.1	F
	R	58	62	106	43.6	E
	Subtotal	324	324	100	82.0	F
EB	L	100	95	95	9.6	A
	T	216	219	101	5.2	A
	Subtotal	316	314	99	6.5	A
WB	T	90	83	93	3.7	A
	R	373	367	98	2.0	A
	Subtotal	463	450	97	2.3	A
Total		1,103	1,088	99	27.4	D

Intersection: West Jr. High Access/West HS Access & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	5	4	80	21.3	C
	R	5	5	100	7.7	A
	Subtotal	10	9	90	13.7	B
SB	L	6	5	83	16.6	C
	R	16	17	108	6.0	A
	Subtotal	22	22	100	8.4	A
EB	L	4	5	133	4.0	A
	T	480	476	99	2.3	A
	R	15	15	100	1.3	A
	Subtotal	499	496	99	2.3	A
WB	L	5	4	84	3.6	A
	T	454	443	98	1.0	A
	R	16	16	102	0.4	A
	Subtotal	475	463	97	1.0	A
Total		1,005	990	98	1.9	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	30	103	30.3	D
	R	19	17	91	12.9	B
	Subtotal	48	47	98	24.0	C
EB	L	74	74	100	14.5	B
	T	425	417	98	0.7	A
	Subtotal	499	491	98	2.8	A
WB	T	470	456	97	2.0	A
	R	176	175	99	0.7	A
	Subtotal	646	631	98	1.6	A
Total		1,193	1,169	98	3.0	A

Intersection: East Jr. High Access & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	86	85	99	16.1	C
	R	115	126	110	5.7	A
	Subtotal	201	211	105	9.9	A
EB	T	384	374	97	0.6	A
	R	78	79	101	0.2	A
	Subtotal	462	453	98	0.5	A
WB	L	156	154	99	5.9	A
	T	557	539	97	1.9	A
	Subtotal	713	693	97	2.8	A
Total		1,376	1,357	99	3.2	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	35	34	97	127.4	F
	T	13	15	115	135.3	F
	R	24	23	96	166.1	F
	Subtotal	72	72	100	141.4	F
SB	L	57	46	81	298.6	F
	T	15	11	72	281.2	F
	R	50	40	80	278.1	F
	Subtotal	122	97	80	288.2	F
EB	L	30	28	94	49.9	E
	T	427	408	96	46.7	E
	R	44	46	105	46.3	E
	Subtotal	501	482	96	46.8	E
WB	L	82	81	98	6.2	A
	T	648	645	99	1.9	A
	R	22	25	114	1.2	A
	Subtotal	752	751	100	2.3	A
Total		1,448	1,402	97	46.7	E

Intersection: S.R. 36 & Bates Canyon Road
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	355	353	99	99.1	F
	T	1,426	1,411	99	12.6	B
	R	18	17	94	2.3	A
	Subtotal	1,799	1,781	99	29.6	C
SB	L	18	19	106	34.7	C
	T	1,067	1,076	101	22.1	C
	R	262	267	102	8.7	A
	Subtotal	1,347	1,362	101	19.6	B
EB	L	179	165	92	214.0	F
	T	58	57	98	39.5	D
	R	299	277	93	32.0	C
	Subtotal	536	499	93	93.0	F
WB	L	15	16	107	45.6	D
	T	90	84	93	44.8	D
	R	37	40	108	30.1	C
	Subtotal	142	140	99	40.7	D
Total		3,824	3,782	99	35.7	D

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Mitigated Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	266	273	103	22.1	C
	R	58	56	96	4.0	A
	Subtotal	324	329	102	19.0	C
EB	L	100	100	100	7.3	A
	T	216	220	102	0.6	A
	Subtotal	316	320	101	2.7	A
WB	T	90	85	95	0.6	A
	R	373	376	101	1.0	A
	Subtotal	463	461	100	0.9	A
Total		1,103	1,110	101	6.8	A

Intersection: West Jr. High Access/West HS Access & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	5	5	100	18.7	C
	R	5	5	100	8.4	A
	Subtotal	10	10	100	13.6	B
SB	L	6	5	83	24.7	C
	R	16	15	95	7.1	A
	Subtotal	22	20	91	11.5	B
EB	L	4	4	107	4.6	A
	T	480	492	102	1.7	A
	R	15	17	113	0.9	A
	Subtotal	499	513	103	1.7	A
WB	L	5	4	84	3.6	A
	T	454	457	101	1.1	A
	R	16	14	89	0.4	A
	Subtotal	475	475	100	1.1	A
Total		1,005	1,018	101	1.7	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
 Analysis Period: Existing (2022) Mitigated Plus Project
 Time Period: Morning Peak Hour
 Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
 Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	31	107	30.6	D
	R	19	20	107	27.5	D
	Subtotal	48	51	106	29.4	D
EB	L	74	75	101	14.9	B
	T	425	435	102	0.8	A
	Subtotal	499	510	102	2.9	A
WB	T	470	469	100	2.1	A
	R	176	177	100	0.8	A
	Subtotal	646	646	100	1.7	A
Total		1,193	1,207	101	3.4	A

Intersection: East Jr. High Access & Bates Canyon Road
 Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	86	80	93	17.6	C
	R	115	120	105	5.8	A
	Subtotal	201	200	100	10.5	B
EB	T	384	391	102	0.7	A
	R	78	80	103	0.2	A
	Subtotal	462	471	102	0.6	A
WB	L	156	151	97	6.3	A
	T	557	564	101	2.0	A
	Subtotal	713	715	100	2.9	A
Total		1,376	1,386	101	3.2	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Existing (2022) Mitigated Plus Project
Time Period: Morning Peak Hour **Project #:** UT22-2191

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	35	32	91	32.6	D
	T	13	13	100	24.6	C
	R	24	25	104	10.6	B
	Subtotal	72	70	97	23.3	C
SB	L	57	53	93	32.5	D
	T	15	15	98	28.8	D
	R	50	56	111	13.5	B
	Subtotal	122	124	102	23.5	C
EB	L	30	28	94	6.5	A
	T	427	438	103	2.0	A
	R	44	45	102	1.3	A
	Subtotal	501	511	102	2.2	A
WB	L	82	88	107	6.0	A
	T	648	649	100	2.0	A
	R	22	23	105	1.3	A
	Subtotal	752	760	101	2.4	A
Total		1,448	1,465	101	5.1	A

Intersection: S.R. 36 & Bates Canyon Road
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	355	354	100	46.9	D
	T	1,426	1,399	98	11.5	B
	R	18	18	100	1.8	A
	Subtotal	1,799	1,771	98	18.5	B
SB	L	18	18	100	37.1	D
	T	1,067	1,064	100	27.9	C
	R	262	269	103	10.9	B
	Subtotal	1,347	1,351	100	24.6	C
EB	L	179	175	98	80.6	F
	T	58	62	106	23.6	C
	R	299	307	103	19.0	B
	Subtotal	536	544	101	39.3	D
WB	L	15	13	87	41.3	D
	T	90	90	100	43.0	D
	R	37	41	111	28.1	C
	Subtotal	142	144	101	38.6	D
Total		3,824	3,810	100	24.6	C

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	216	207	96	86.8	F
	R	68	71	105	17.4	C
	Subtotal	284	278	98	69.1	F
EB	L	116	118	102	13.9	B
	T	235	236	101	9.4	A
	Subtotal	351	354	101	10.9	B
WB	T	114	116	101	3.8	A
	R	340	334	98	2.2	A
	Subtotal	454	450	99	2.6	A
Total		1,088	1,082	99	22.5	C

Intersection: Bates Canyon Road & West HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	6	4	67	10.4	B
	R	16	16	102	4.8	A
	Subtotal	22	20	91	5.9	A
EB	L	4	3	80	4.6	A
	T	457	450	98	1.3	A
	Subtotal	461	453	98	1.3	A
WB	T	452	445	98	1.1	A
	R	16	19	121	0.3	A
	Subtotal	468	464	99	1.1	A
Total		950	937	99	1.3	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	28	97	27.3	D
	R	19	17	91	19.7	C
	Subtotal	48	45	94	24.4	C
EB	L	74	69	93	12.9	B
	T	403	398	99	0.2	A
	Subtotal	477	467	98	2.1	A
WB	T	502	498	99	2.1	A
	R	176	176	100	0.8	A
	Subtotal	678	674	99	1.8	A
Total		1,202	1,186	99	2.7	A

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	41	43	106	20.4	C
	T	16	17	105	19.8	C
	R	28	25	88	10.8	B
	Subtotal	85	85	100	17.5	C
SB	L	67	65	97	35.4	E
	T	18	19	107	23.5	C
	R	35	36	103	20.4	C
	Subtotal	120	120	100	29.0	D
EB	L	12	13	108	6.6	A
	T	399	390	98	2.3	A
	R	51	50	99	1.1	A
	Subtotal	462	453	98	2.3	A
WB	L	96	92	96	5.0	A
	T	578	572	99	2.2	A
	R	26	28	107	1.4	A
	Subtotal	700	692	99	2.5	A
Total		1,367	1,350	99	5.5	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School

Analysis Period: Future (2027) Background

Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: S.R. 36 & Bates Canyon Road

Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	397	396	100	49.8	D
	T	1,654	1,677	101	10.8	B
	R	21	22	105	1.7	A
	Subtotal	2,072	2,095	101	18.1	B
SB	L	21	21	100	35.7	D
	T	1,237	1,240	100	28.7	C
	R	171	168	98	10.7	B
	Subtotal	1,429	1,429	100	26.7	C
EB	L	118	116	98	90.9	F
	T	49	52	106	24.1	C
	R	334	323	97	24.4	C
	Subtotal	501	491	98	40.1	D
WB	L	18	19	106	48.5	D
	T	90	88	98	49.3	D
	R	43	47	109	34.4	C
	Subtotal	151	154	102	44.7	D
Total		4,154	4,169	100	24.8	C

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Mitigated Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
Type: All-way Stop Controlled

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	216	211	98	7.4	A
	R	68	69	102	3.3	A
	Subtotal	284	280	99	6.4	A
EB	L	116	122	105	7.7	A
	T	235	233	99	10.4	B
	Subtotal	351	355	101	9.5	A
WB	T	114	114	100	9.0	A
	R	340	339	100	8.0	A
	Subtotal	454	453	100	8.3	A
Total		1,088	1,088	100	8.2	A

Intersection: Bates Canyon Road & West HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	6	4	67	8.2	A
	R	16	14	89	5.0	A
	Subtotal	22	18	82	5.7	A
EB	L	4	3	80	4.3	A
	T	457	452	99	2.5	A
	Subtotal	461	455	99	2.5	A
WB	T	452	455	101	1.1	A
	R	16	17	108	0.3	A
	Subtotal	468	472	101	1.1	A
Total		950	945	99	1.9	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Mitigated Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	29	100	34.8	D
	R	19	18	96	20.5	C
	Subtotal	48	47	98	29.3	D
EB	L	74	73	99	14.9	B
	T	403	396	98	0.2	A
	Subtotal	477	469	98	2.5	A
WB	T	502	507	101	2.0	A
	R	176	172	98	0.8	A
	Subtotal	678	679	100	1.7	A
Total		1,202	1,195	99	3.1	A

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	41	44	108	20.8	C
	T	16	16	98	19.0	C
	R	28	26	92	7.1	A
	Subtotal	85	86	101	16.3	C
SB	L	67	65	97	27.1	D
	T	18	18	101	20.3	C
	R	35	35	100	10.1	B
	Subtotal	120	118	98	21.0	C
EB	L	12	11	92	5.9	A
	T	399	395	99	1.7	A
	R	51	47	93	1.0	A
	Subtotal	462	453	98	1.7	A
WB	L	96	95	99	5.6	A
	T	578	576	100	2.2	A
	R	26	27	103	1.3	A
	Subtotal	700	698	100	2.6	A
Total		1,367	1,355	99	4.8	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Mitigated Background
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: S.R. 36 & Bates Canyon Road
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	397	398	100	58.0	E
	T	1,654	1,684	102	11.3	B
	R	21	21	100	1.8	A
	Subtotal	2,072	2,103	101	20.0	B
SB	L	21	22	105	36.2	D
	T	1,237	1,229	99	28.0	C
	R	171	171	100	10.6	B
	Subtotal	1,429	1,422	100	26.0	C
EB	L	118	118	100	113.7	F
	T	49	51	104	26.5	C
	R	334	326	98	24.0	C
	Subtotal	501	495	99	45.6	D
WB	L	18	17	94	48.6	D
	T	90	88	98	50.8	D
	R	43	48	112	37.2	D
	Subtotal	151	153	101	46.3	D
Total		4,154	4,173	100	26.3	C

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
Type: All-way Stop Controlled

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	321	332	103	51.7	F
	R	68	70	103	26.8	D
	Subtotal	389	402	103	47.4	E
EB	L	116	111	96	17.7	C
	T	278	278	100	29.7	D
	Subtotal	394	389	99	26.3	D
WB	T	156	132	84	9.1	A
	R	435	408	94	9.0	A
	Subtotal	591	540	91	9.0	A
Total		1,374	1,331	97	25.7	D

Intersection: West Jr. High Access/West HS Access & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	5	5	100	28.9	D
	R	10	8	82	34.4	D
	Subtotal	15	13	87	32.3	D
SB	L	6	7	117	57.1	F
	R	16	17	108	53.0	F
	Subtotal	22	24	109	54.2	F
EB	L	4	2	53	9.0	A
	T	596	603	101	8.6	A
	R	20	20	100	6.3	A
	Subtotal	620	625	101	8.5	A
WB	L	5	4	84	18.2	C
	T	587	533	91	1.1	A
	R	16	15	95	0.3	A
	Subtotal	608	552	91	1.2	A
Total		1,264	1,214	96	6.3	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	28	97	45.1	E
	R	19	24	128	24.0	C
	Subtotal	48	52	108	35.4	E
EB	L	74	69	93	18.2	C
	T	549	560	102	2.9	A
	Subtotal	623	629	101	4.6	A
WB	T	602	532	88	2.0	A
	R	176	164	93	0.8	A
	Subtotal	778	696	89	1.7	A
Total		1,449	1,377	95	4.3	A

Intersection: East Jr. High Access & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	127	110	87	142.3	F
	R	228	195	86	131.0	F
	Subtotal	355	305	86	135.1	F
EB	T	460	471	102	8.4	A
	R	128	122	95	2.0	A
	Subtotal	588	593	101	7.1	A
WB	L	281	251	89	17.3	C
	T	650	587	90	4.3	A
	Subtotal	931	838	90	8.2	A
Total		1,874	1,736	93	31.0	D

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	41	21	52	506.7	F
	T	16	6	37	968.1	F
	R	28	9	32	1439.8	F
	Subtotal	85	36	42	816.9	F
SB	L	67	9	13	1998.1	F
	T	18	4	23	972.5	F
	R	61	14	23	829.0	F
	Subtotal	146	27	18	1240.0	F
EB	L	38	36	94	136.6	F
	T	608	539	89	153.6	F
	R	51	48	95	160.1	F
	Subtotal	697	623	89	153.1	F
WB	L	96	89	93	11.4	B
	T	855	828	97	2.3	A
	R	26	28	107	1.8	A
	Subtotal	977	945	97	3.1	A
Total		1,906	1,631	86	132.4	F

Intersection: S.R. 36 & Bates Canyon Road
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	462	440	95	83.9	F
	T	1,654	1,662	100	17.2	B
	R	21	23	110	2.8	A
	Subtotal	2,137	2,125	99	30.9	C
SB	L	21	20	95	52.6	D
	T	1,237	1,244	101	46.7	D
	R	323	322	100	20.4	C
	Subtotal	1,581	1,586	100	41.4	D
EB	L	237	178	75	276.4	F
	T	100	79	79	67.5	E
	R	390	312	80	54.0	D
	Subtotal	727	569	78	125.4	F
WB	L	18	17	94	55.1	E
	T	133	120	90	50.8	D
	R	43	43	100	41.5	D
	Subtotal	194	180	93	49.0	D
Total		4,639	4,460	96	48.4	D

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Mitigated Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & Stallion Way
Type: All-way Stop Controlled

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	321	311	97	19.0	C
	R	68	65	96	5.0	A
	Subtotal	389	376	97	16.6	C
EB	L	116	107	92	9.8	A
	T	278	266	96	14.8	B
	Subtotal	394	373	95	13.4	B
WB	T	156	151	97	9.7	A
	R	435	429	99	22.8	C
	Subtotal	591	580	98	19.4	C
Total		1,374	1,329	97	16.9	C

Intersection: West Jr. High Access/West HS Access & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	5	3	60	11.2	B
	R	10	10	103	5.1	A
	Subtotal	15	13	87	6.5	A
SB	L	6	6	100	22.1	C
	R	16	16	102	7.3	A
	Subtotal	22	22	100	11.3	B
EB	L	4	3	80	7.0	A
	T	596	573	96	2.8	A
	R	20	20	100	2.1	A
	Subtotal	620	596	96	2.8	A
WB	L	5	8	168	6.4	A
	T	587	575	98	0.8	A
	R	16	16	102	0.4	A
	Subtotal	608	599	99	0.9	A
Total		1,264	1,230	97	2.1	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Mitigated Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Bates Canyon Road & East HS Access
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
SB	L	29	27	93	34.7	D
	R	19	18	96	5.7	A
	Subtotal	48	45	94	23.1	C
EB	L	74	66	89	17.0	C
	T	549	536	98	0.4	A
	Subtotal	623	602	97	2.2	A
WB	T	602	599	100	1.4	A
	R	176	183	104	0.9	A
	Subtotal	778	782	101	1.3	A
Total		1,449	1,429	99	2.9	A

Intersection: East Jr. High Access & Bates Canyon Road
Type: Roundabout

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	127	130	103	7.7	A
	R	228	226	99	3.5	A
	Subtotal	355	356	100	5.0	A
EB	T	460	448	97	3.4	A
	R	128	132	103	2.0	A
	Subtotal	588	580	99	3.1	A
WB	L	281	288	102	8.5	A
	T	650	650	100	6.7	A
	Subtotal	931	938	101	7.3	A
Total		1,874	1,874	100	5.5	A

SimTraffic LOS Report

Project: Erda - Stansbury Jr. High School
Analysis Period: Future (2027) Mitigated Plus Project
Time Period: Morning Peak Hour

Project #: UT22-2191

Intersection: Cambridge Way & Bates Canyon Road
Type: Unsignalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	41	43	106	35.0	D
	T	16	18	111	30.4	D
	R	28	24	85	13.9	B
	Subtotal	85	85	100	28.1	D
SB	L	67	62	93	33.2	D
	T	18	17	96	34.5	D
	R	61	63	103	18.6	C
	Subtotal	146	142	97	26.9	D
EB	L	38	39	102	8.8	A
	T	608	591	97	1.4	A
	R	51	50	99	1.0	A
	Subtotal	697	680	98	1.8	A
WB	L	96	92	96	6.9	A
	T	855	856	100	2.0	A
	R	26	27	103	1.6	A
	Subtotal	977	975	100	2.5	A
Total		1,906	1,882	99	5.6	A

Intersection: S.R. 36 & Bates Canyon Road
Type: Signalized

Approach	Movement	Demand Volume	Volume Served		Delay/Veh (sec)	
			Avg	%	Avg	LOS
NB	L	462	450	97	59.7	E
	T	1,654	1,640	99	14.7	B
	R	21	20	95	2.3	A
	Subtotal	2,137	2,110	99	24.2	C
SB	L	21	23	110	52.8	D
	T	1,237	1,218	98	30.5	C
	R	323	318	98	11.6	B
	Subtotal	1,581	1,559	99	27.0	C
EB	L	237	221	93	75.7	E
	T	100	100	100	25.1	C
	R	390	377	97	19.7	B
	Subtotal	727	698	96	38.2	D
WB	L	18	15	83	54.3	D
	T	133	141	106	128.7	F
	R	43	48	112	113.6	F
	Subtotal	194	204	105	119.7	F
Total		4,639	4,571	99	31.7	C

APPENDIX D

95th Percentile Queue Length Reports

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Existing (2022) Background

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft



Project #: UT22-2191

Intersection	NB				SB					EB					WB	
	L	LTR	R	T	L	LR	LTR	R	T	L	LT	LTR	R	T	L	TR
01: Bates Canyon Road & Stallion Way						300					125					
02: Bates Canyon Road & West HS Access						75					225					
03: Bates Canyon Road & East HS Access						150					125					
04: Cambridge Way & Bates Canyon Road		75					100					50			75	
05: S.R. 36 & Bates Canyon Road	325			250	50			75	300	175			200	100	50	150

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Existing (2022) Mitigated Background

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft



Project #: UT22-2191

Intersection	NB				SB					EB					WB	
	L	LTR	R	T	L	LR	LTR	R	T	L	LT	LTR	R	T	L	TR
01: Bates Canyon Road & Stallion Way					175			100		125						
02: Bates Canyon Road & West HS Access						50										
03: Bates Canyon Road & East HS Access					100					75						
04: Cambridge Way & Bates Canyon Road		75					100					50			50	
05: S.R. 36 & Bates Canyon Road	350			275				50	300	200			175	75	50	150

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Existing (2022) Plus Project

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

Project #: UT22-2191

Intersection	NB				SB					EB						WB		
	L	LTR	R	T	L	LR	LTR	R	T	L	LT	LTR	R	T	TR	L	T	TR
01: Bates Canyon Road & Stallion Way					325			800		150								25
02: West Jr. High Access/West HS Access & Bates Canyon Road		50					50								75			
03: Bates Canyon Road & East HS Access						75				75				75				50
04: East Jr. High Access & Bates Canyon Road	100			75												75		
05: Cambridge Way & Bates Canyon Road		300					575					750				75		
06: S.R. 36 & Bates Canyon Road	525			725	50			100	300	425			275	575		50		175

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Existing (2022) Mitigated Plus Project

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

Project #: UT22-2191

Intersection	NB					SB					EB				WB				
	L	LTR	R	T	TR	L	LR	LTR	R	T	TR	L	R	T	TR	L	R	T	TR
01: Bates Canyon Road & Stallion Way						250			150			75		50				50	
02: West Jr. High Access/West HS Access & Bates Canyon Road		75							50						100				
03: Bates Canyon Road & East HS Access							100					75		75					50
04: East Jr. High Access & Bates Canyon Road	100		75													75		25	
05: Cambridge Way & Bates Canyon Road	75				75	100					100	50				75			
06: S.R. 36 & Bates Canyon Road	325				250	50			125	375		275	225	175		50			150

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Future (2027) Background

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES  **ENGINEERING**
innovative transportation solutions

Project #: UT22-2191

Intersection	NB				SB					EB					WB	
	L	LTR	R	T	L	LR	LTR	R	T	L	LT	LTR	R	T	L	TR
01: Bates Canyon Road & Stallion Way					375			475			250					50
02: Bates Canyon Road & West HS Access						50										
03: Bates Canyon Road & East HS Access						75				75						50
04: Cambridge Way & Bates Canyon Road		100					150					75			75	
05: S.R. 36 & Bates Canyon Road	375			275	50			125	375	225			250	175	75	175

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Future (2027) Mitigated Background

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

HALES  **ENGINEERING**
innovative transportation solutions

Project #: UT22-2191

Intersection	NB				SB					EB					WB			
	L	R	T	TR	L	LR	R	T	TR	L	LT	R	T	TR	L	R	T	TR
01: Bates Canyon Road & Stallion Way					100		50			75			100			125	100	
02: Bates Canyon Road & West HS Access						50												
03: Bates Canyon Road & East HS Access						100				100								
04: Cambridge Way & Bates Canyon Road	75			75	100				75						75			
05: S.R. 36 & Bates Canyon Road	450		475		50		100	375		275		250	175		50			175

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Future (2027) Plus Project

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

Project #: UT22-2191

Intersection	NB					SB					EB				WB				
	L	LTR	R	T	TR	L	LR	LTR	R	T	TR	L	R	T	TR	L	R	T	TR
01: Bates Canyon Road & Stallion Way						325			625			125		350			150	125	
02: West Jr. High Access/West HS Access & Bates Canyon Road		75						75						250		50			
03: Bates Canyon Road & East HS Access							125					75		100					50
04: East Jr. High Access & Bates Canyon Road	325		825										100	175		175		250	
05: Cambridge Way & Bates Canyon Road	175				600	250				750		200			1,575	100			50
06: S.R. 36 & Bates Canyon Road	550			675		50		350	550			400	350	575		50			225

SimTraffic Queueing Report

Project: Erda - Stansbury Jr. High School

Analysis: Future (2027) Mitigated Plus Project

Time Period: Morning Peak Hour

95th Percentile Queue Length (feet) - Rounded Up to Nearest Multiple of 25 ft

Project #: UT22-2191

Intersection	NB					SB					EB				WB				
	L	LTR	R	T	TR	L	LTR	R	T	TR	L	R	T	TR	L	LT	R	T	TR
01: Bates Canyon Road & Stallion Way						225		75			100		150				350	150	
02: West Jr. High Access/West HS Access & Bates Canyon Road		75					50						50	50	50				
03: Bates Canyon Road & East HS Access						100		50			75		50					50	50
04: East Jr. High Access & Bates Canyon Road	100		75										75	50		150		75	
05: Cambridge Way & Bates Canyon Road	75				75	125				125	50				75				
06: S.R. 36 & Bates Canyon Road	275			300		50		200	375		200	250	150		125				325