

Subject: FW: FW: [EXTERNAL] Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

Attachments: EPS_Heritage Gateway TIA_2nd Sub (1).pdf

From: Jared Taylor <jtaylor@heritageacademyaz.com>
Sent: Tuesday, March 1, 2022 8:37 AM
To: Assenza, Adam <Adam.Assenza@stb.gov>
Cc: Kathleen Lopez <klopez@heritageacademyaz.com>; Phoebus, Elizabeth (Betsi) <Betsi.Phoebus@jacobs.com>; Buckley, Maggie <Maggie.Buckley@jacobs.com>
Subject: Re: FW: [EXTERNAL] Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

Hi Adam,

Here's a copy of the traffic study around our area. Not sure how helpful it is, but perhaps there are some insights that would be useful.

Thanks,

Jared

P.S. As a side note, there are a few K-12 schools in the area. Speaking only for Heritage, we are big supporters of the rail system and look forward to learning more about your project. In the planning should UP have any interest in supporting schools, a thought would be to add some educational elements to the proposed development that East Valley students might benefit from. I'm not thinking of a full-blown visitor center--although that would be great--but something more passive with educational content. For example, perhaps there is a simple marker or image set placed in a location for a group of 4th graders to safely visit and learn about the rail system and how it benefits their daily lives. Just a thought. Happy to discuss more if this is of any interest.

On Wed, Feb 23, 2022 at 8:58 AM Assenza, Adam <Adam.Assenza@stb.gov> wrote:

Hello Jared,

In our last correspondence you offered to provide recent traffic studies that may assist in our review of the proposed project area. We don't appear to have received those. Could you please confirm if you sent them to us? We want to make sure we didn't miss anything.

Thanks,

ADAM ASSENZA

Environmental Protection Specialist (he/him)

Office of Environmental Analysis
Surface Transportation Board
P: 202-245-0301
E: Adam.Assenza@STB.gov

From: Assenza, Adam
Sent: Friday, January 7, 2022 9:56 AM
To: Jared Taylor <jtaylor@heritageacademyaz.com>
Cc: Kathleen Lopez <klopez@heritageacademyaz.com>; Phoebus, Elizabeth (Betsi) <Betsi.Phoebus@jacobs.com>; Buckley, Maggie <Maggie.Buckley@jacobs.com>
Subject: RE: FW: [EXTERNAL] Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

Hi Jared,

Sorry I forgot to add to my previous reply, please do share the recent traffic studies that you have, as they would be helpful in our analysis.

Thanks,

Adam

From: Assenza, Adam
Sent: Tuesday, January 4, 2022 9:51 AM
To: Jared Taylor <jtaylor@heritageacademyaz.com>
Cc: Kathleen Lopez <klopez@heritageacademyaz.com>; Phoebus, Elizabeth (Betsi) <Betsi.Phoebus@jacobs.com>; Buckley, Maggie <Maggie.Buckley@jacobs.com>
Subject: RE: FW: [EXTERNAL] Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

Hello Jared and Kathleen,

Thank you for the additional information. After we've had the chance to process inbound commentary from our initial outreach, we will develop virtual meetings schedules as several different state and local entities have already begun requesting these.

Adam

From: Jared Taylor <jtaylor@heritageacademyaz.com>
Sent: Monday, January 3, 2022 7:49 PM
To: Assenza, Adam <Adam.Assenza@stb.gov>
Cc: Kathleen Lopez <klopez@heritageacademyaz.com>
Subject: Re: FW: [EXTERNAL] Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

Hi Adam,

Thank you for this follow up email and additional information. We operate a high school on the corner of Germann and 196th in Queen Creek. Currently we are building a school for grades P-8 and a school for autistic children across the street in Mesa on the corner of Germann and 80th street (same as 196th, just on the Mesa side) The new schools will be operational in the Fall of 2022.

I appreciate your sensitivity to the impact on schools and the surrounding area. We are currently far enough away from the existing UP line that rail sounds do not impact our operations. A new line on Pecos may have more sound, but I don't think it will have a prohibitive effect on our operations provided there are not constant train whistles or loud noises made from activities such as connections, repair/overhaul, loading/unloading, etc. The further North any new rail line could be positioned would benefit not only our schools, but the three other schools which are South of Pecos, but within 2 miles of this area.

While we don't have a bus system our parents arrive from over 30 different zip codes in the region. This means that our traffic is heaviest between 7:30 - 8:00am and 3-4pm Mon-Thursday. I know you probably can't bind future UP schedules, but having excess at-grade crossings and trains blocking traffic at these times would increase our tardy rates. Carefully locating these crossings or requiring UP to install bypass systems will help not only the surrounding school systems, but also the public safety in the area.

I have a background in municipal planning/governance and would be more than happy to join any future meetings to discuss optimal ways to ensure traffic flow during key hours for our schools and other schools in the area. I would also be willing to share our most recent traffic study if that would be helpful in your planning process.

I hope this information is useful. Please let me know if I can be of any future use. I'll CC my Principal on this email and ask her to add anything that may be helpful.

Regards,

Jared

On Mon, Jan 3, 2022 at 5:21 PM Assenza, Adam <Adam.Assenza@stb.gov> wrote:

Hello Jared,

Happy New Year, and apologies for just not getting back to you. I was only made aware of your response today.

I am the project manager at the Office of Environmental Analysis within the Surface Transportation Board in charge of this environmental review. At this early stage, we are evaluating constraints within the project area that could affect the development of alternatives to be carried forward through the review. The way these projects typically work, a railroad applicant will approach the Board with the intent to construct a rail line connecting an area without rail service to an existing rail line. The applicant, in this case UP, often submits its initial preferred alignment, along with a rationale as to why they've selected that route, but it is on us, the lead federal agency, based on current environmental laws, to devise and evaluate practicable alternatives that would meet the railroad's stated purpose and need.

At present, the railroad's preferred alternative aligns closer to the north end of the project area that we sent you in our initial letter, sticking close to the southern edge of Phoenix-Mesa Gateway Airport, closer to E. Pecos Road and running between agricultural lots. No alternatives have yet been developed that approach Germann Road at 88th St., but we are still in the early stages of alternative development.

What would be particularly helpful to us would be any information about bus routes or sensitive receptors that could be affected by different alignments in the project area. I don't think it would be in any community's best interest to see a new rail line running so close to a school that noise would disrupt education, which is why we do this early outreach to a wide range of local, state, and federal offices with jurisdiction or local facilities in the project area.

If you have any other questions or would like to discuss any aspect of the project, please reach out to me directly at adam.assenza@stb.gov or by phone at 202-245-0301.

Thank you for your interest and cooperation.

ADAM ASSENZA

Environmental Protection Specialist (he/him)

Office of Environmental Analysis
Surface Transportation Board
P: 202-245-0301
E: Adam.Assenza@STB.gov

From: Buckley, Maggie <Maggie.Buckley@jacobs.com>
Sent: Monday, January 3, 2022 1:08 PM
To: Assenza, Adam <Adam.Assenza@stb.gov>
Cc: Phoebus, Elizabeth (Betsi) <Betsi.Phoebus@jacobs.com>
Subject: FW: [EXTERNAL] Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

From: Jared Taylor <jtaylor@heritageacademyaz.com>
Sent: Friday, December 10, 2021 6:32 PM
To: Buckley, Maggie <Maggie.Buckley@jacobs.com>
Cc: Kathleen Lopez <klopez@heritageacademyaz.com>; Wade Melchin <wmelchin@heritageacademyaz.com>
Subject: [EXTERNAL] Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

Hi Maggie,

Thank you for this notice. I operate a school in this area. In order to provide meaningful feedback, we would need more information on what is proposed that would be near 80th and Germann where our schools are located.

Please provide more information and we'd be happy to share our thoughts on any impact.

Regards,

Jared

----- Forwarded message -----

From: Kathleen Lopez <klopez@heritageacademyaz.com>
Date: Fri, Dec 10, 2021 at 3:58 PM
Subject: Fwd: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation
To: Jared Taylor <jtaylor@heritageacademyaz.com>, Shalisa Arnold <shalisa.arnold@heritageacademyaz.com>

FYI

----- Forwarded message -----

From: **Buckley, Maggie** <Maggie.Buckley@jacobs.com>

Date: Fri, Dec 10, 2021 at 3:46 PM

Subject: UPRR Pecos Industrial Rail Access and Train Extension (PIRATE) Preliminary Environmental Consultation

To: klopez@heritageacademyaz.com <klopez@heritageacademyaz.com>

CC: Adam.Assenza@stb.gov <Adam.Assenza@stb.gov>, Phoebus, Elizabeth (Betsi) <Betsi.Phoebus@jacobs.com>

Hello Ms. Lopez,

The Union Pacific Railroad Company intends to seek authority from the Surface Transportation Board (Board) to construct and operate six miles of new rail line in Maricopa County, Arizona. An initial agency consultation letter is attached that provides additional information about the project and requests your agency's input regarding the proposed rail line by January 10, 2022. This letter was also mailed to your office on December 9, 2021. Please let us know if you prefer to receive future correspondence by mail or electronically and the preferred point of contact for your agency.

If you have any questions, please contact Adam Assenza, the Board's Office of Environmental Analysis Project Manager, at (202) 245-0301 or Adam.Assenza@stb.gov. We greatly appreciate your assistance and look forward to your participation in the Board's environmental review process for this project.

Thank you,

Maggie Buckley | [Jacobs](#) | Environmental Project Manager (she/her)

O: 425.233.3117 | M: 206.949.5955 | maggie.buckley@jacobs.com
[999 W Riverside Avenue, Suite 500 | Spokane, WA 99201 | USA](#)

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Sincerely,

Kathleen Lopez

Kathleen Lopez

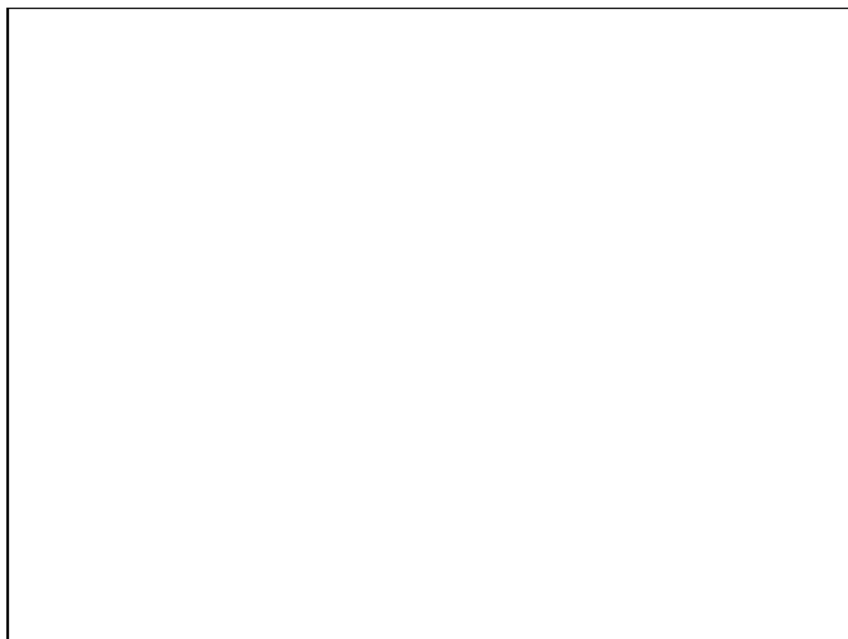
Principal

Mathematics Teacher

klopez@heritageacademyaz.com

480-461-4400 * hagateway.com

"Educate and inform the whole mass of the people... They are the only sure reliance for the preservation of our liberty." - Thomas Jefferson



--

Jared L. Taylor
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Traffic Impact Analysis

Heritage Gateway Charter School

Northeast Corner of 80th Street and Germann Road

2nd Submittal

Mesa, Arizona

October 2021

1130 N Alma School Road, Suite 120
Mesa, AZ 85201
o: 480.503.2250

Traffic Impact Analysis

Heritage Gateway Charter School

Northeast Corner of 80th Street and Germann Road

2nd Submittal

Mesa, Arizona

October 2021

Prepared by:

EPS Group, Inc.
1130 North Alma School Road, Suite 120
Mesa, AZ 85201



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EXECUTIVE SUMMARY

INTRODUCTION

A traffic impact study has been requested during the development review process to assess the impacts of the proposed project on the surrounding transportation system. EPS Group has been retained to prepare the traffic impact study.

A new Heritage Gateway Charter School site is proposed on the northeast corner of 80th Street and Germann Road in Mesa, Arizona. The proposed Pre-K through 8th grade school campus will have 1,060 students at full occupancy. Lexington Academy, a school for autism, is also on campus and will have 180 students at full occupancy. An existing Heritage Gateway Charter School exists in the southeast corner of the intersection and currently serves 6th grade through 12th grade. When the new campus is constructed, the existing school will serve 9th grade through 12th grade. Queen Creek has jurisdiction of Germann Road, and the existing school south of Germann Road is in Queen Creek. Two driveways are proposed, one on 80th Street and one on Germann Road. The estimated opening year is 2022.

Existing traffic counts were obtained on Tuesday August 3, 2021 from 7:00 AM to 9:00 AM, and from 2:30 PM to 6:30 PM. The peak hours analyzed in the study correspond to AM peak hour of 7:30 AM to 8:30 AM of the study intersections and 3:00 PM to 4:00 PM in the afternoon to align with the school afternoon peak hour.

TRIP GENERATION

Opening year of the new school (860 students) is anticipated to generate 1,591 weekday daily trips (entering/exiting) with 980 trips (entering/exiting) during the AM peak hour and 593 trips (entering/exiting) during PM Peak Hour.

Full build-out of the school (1,260 students) is anticipated to generate 2,294 weekday daily trips (entering/exiting) with 1,414 trips (entering/exiting) during the AM peak hour and 856 trips (entering/exiting) during PM Peak Hour.

FUTURE LEVEL-OF-SERVICE

The **80th Street/Germann Road** and **80th Street/Pecos Road** intersections experience significant delay with existing conditions. With the proposed Heritage Gateway school, the delays will increase. The minor street traffic volumes meet the requirements for a traffic signal with existing counts, and the major street traffic volumes are expected to be satisfied in the future as the area is developed. Utilizing a 3% annual growth rate, the major street volumes are expected to be met at the 80th Street/Germann Road intersection in horizon year 2022. By horizon year 2030, the major street volumes are expected to be met at the 80th Street/Pecos Road intersection. There is a high volume of existing traffic (404 vph in the AM peak of intersection and 316 vph during AM peak of school) making a northbound left-turn at the 80th Street/Pecos Road intersection.

The **Sossaman Road/Germann Road** intersection also experiences delay with existing conditions. The horizon year for improving this intersection is unknown, and therefore was analyzed as unsignalized in this study. Hourly traffic volumes were not collected at this intersection for this analysis. However, it is expected that traffic volumes will be met for the installation of a traffic signal in the near future if not already. This intersection is complicated due to the proximity of a canal and the railroad.

The exiting approach of the school driveway on 80th Street will operate at level-of-service 'F' during the AM peak hour of horizon year 2030. This is due to the high number of vehicles heading north on 80th Street during the AM peak hour. A future traffic signal at the intersection of 80th Street and Germann Road has the potential to provide gaps on 80th Street.

The exiting approach of the existing east school driveway on Germann Road will also operate at level-of-service 'F' during the AM peak hour of horizon year 2030. This is due to increased background traffic on Germann Road during the AM peak hour. This intersection was analyzed utilizing the existing school traffic volumes. With construction of the new school, the existing school will experience a lower enrollment from 786 students to 575 high school students, thus improving its operation.

The **Sossaman Road/Pecos Road** intersection will have movements with a level of service 'F' in horizon year 2030 during the PM peak hour with background traffic volumes. The Heritage Academy will increase delay. Additional improvements are recommended in year 2030, specifically additional through lanes on Pecos Road and a northbound dual left-turn on Sossaman Road (due to existing traffic volumes).

RECOMMENDATIONS WITH PROPOSED DEVELOPMENT

80th Street & Germann Road - Utilizing a 3% annual growth rate, the major street volumes are expected to be met for installing a traffic signal in year 2022. Therefore, a future traffic signal should be planned and accommodated. Per the City of Mesa, dedicated right-turn lanes should be provided on each approach for arterial/arterial intersections. A westbound right-turn lane is recommended at the 80th Street/Germann Road intersection adjacent to the site.

80th Street & Pecos Road - Utilizing a 3% annual growth rate, the major street volumes are expected to be met for installing a traffic signal by horizon year 2030. Therefore, a future traffic signal should be planned and accommodated.

Proposed School Driveways - Due to school queuing characteristics, a southbound left-turn lane (250 feet of storage) and a northbound right-turn lane (200 feet of storage) on 80th Street at the school driveway are included in the civil plans for the development. A westbound right-turn deceleration lane is also being constructed on Germann Road at the school driveway.

School Circulation - Vehicles will enter the drop-off and pick-up line at Driveway A on 80th Street. Vehicles may enter by making a southbound left-turn or northbound right-turn into the site from 80th Street. Exiting vehicles are prohibited to a right-turn only. Driveway B on Germann Road will only be utilized during off peak times. Per the City of Mesa and Town of Queen Creek, a value of 0.15 shall be required for magnet, charter, and private schools. A distance of 25 feet was assumed for each vehicle to calculate the necessary queue length. The preschool and Lexington Academy student enrollment is not included in the queue calculation, since their drop-off and pick-up times are staggered from the K-8 school. The queuing and circulation for the ultimate conditions based on 960 students is 3,600 feet. When utilizing dual lanes, the site plan provides for 4,094 feet of queuing on-site, which exceeds the calculated required queue of 3,600 feet. The provided on-site queueing results in a rate of 4.26 feet per student or 0.17 vehicles per student.

Dual lanes are effective by stopping vehicles together in both lanes within a designated area of the drop-off/pick-up locations. After all students are safely unloaded/loaded, then the vehicles may proceed and the next group of vehicles enter the designated area. Students should not be dropped off or picked up until all vehicles are pulled forward and stopped and signaled by a staff member.

Staggered Times - As a contingency plan, it is recommended to consider staggered pick-up/drop-off times for K-5 and 6-8 grades. There should also be a 30-minute gap between the start and end times between the new school and existing school to avoid a conflict of traffic.

Pedestrian and Bicycle Facilities - Improved pedestrian and bicycle facilities encourage students to walk and bike to and from school where safety is not a barrier, thus increasing student physical activity and decreasing vehicular traffic. Designated crosswalks should be provided from the school parking lot to the school entry for safe access from the parking lots. The new campus has its own facilities for 6-8 students to use during the day. The high school facilities will mostly be used by 6-8 sport teams outside of school time, and they can be dropped off. On the rare occasion there is crossover during the school day, it will be with a designated staff member. If there is a shared teacher, the teacher will be traveling, not the students.

A future traffic signal at the 80th Street/Germann Road intersection would provide a crossing between the two schools and to/from the existing neighborhood. Students should be prohibited from crossing Germann Road and 80th Street until a traffic signal is installed and in operation.

INTRODUCTION

A traffic impact study has been requested during the development review process to assess the impacts of the proposed project on the surrounding transportation system. EPS Group has been retained to prepare the traffic impact study.

A new Heritage Gateway Charter School site is proposed on the northeast corner of 80th Street and Germann Road in Mesa, Arizona. The proposed Pre-K through 8th grade school campus will have 1,060 students at full build-out. Lexington Academy, a school for autism, is also on campus and will have 180 students at full occupancy. An existing Heritage Gateway Charter School exists in the southeast corner of the intersection and currently serves 6th grade through 12th grade. When the new campus is constructed, the existing school will serve 9th grade through 12th grade. Queen Creek has jurisdiction of Germann Road, and the existing school south of Germann Road is in Queen Creek. Two driveways are proposed, one on 80th Street and one on Germann Road. The estimated opening year is 2022. **Figure 1** provides a location map, and **Figure 2** depicts an aerial of the local area. A site plan is included in **Figure 3** and **Appendix A**.

SCOPE OF STUDY

The traffic impact analysis has been prepared in accordance with section 204.4 (Traffic Impact Studies) of the *City of Mesa 2021 Engineering and Design Standards Manual*. The objectives of the study are the following:

- ❖ Document and evaluate existing traffic conditions.
- ❖ Estimate and evaluate future non-site 2022 and 2030 traffic conditions.
- ❖ Estimate new traffic generated by the proposed development and assign new trips to street system.
- ❖ Evaluate operation of adjacent streets and intersections with the proposed development.
- ❖ Determine the need for modified traffic control and auxiliary lanes at the study intersections.
- ❖ Review driveway design, spacing, queuing, and on-site circulation.

STUDY INTERSECTIONS

The following intersections are included in the study:

- ❖ Sossaman Road & Germann Road
- ❖ 80th Street/196th Street & Germann Road
- ❖ Existing West Driveway & Germann Road
- ❖ Existing East Driveway & Germann Road
- ❖ Hawes Road & Germann Road
- ❖ 80th Street & Pecos Road
- ❖ Sossaman Road & Pecos Road
- ❖ Site Driveways

EXISTING CONDITIONS

SURROUNDING LAND USE

The proposed site is currently vacant. An existing Heritage Gateway Charter School exists opposite of the proposed site in the southeast corner of the intersection. A solar facility is in the northwest corner of 80th Street and Germann Road. An industrial park is north of the solar facility in the southwest corner 80th Street and Pecos Road. A single-family neighborhood is in the southeast corner of 80th Street and Germann Road and surrounds the existing school. Vacant land surrounds the proposed school site to the north and east and along the east side of 80th Street. An American Leadership Academy (ALA) of Applied Technology charter school is proposed on the southeast corner of Sossaman Road and Pecos Road.

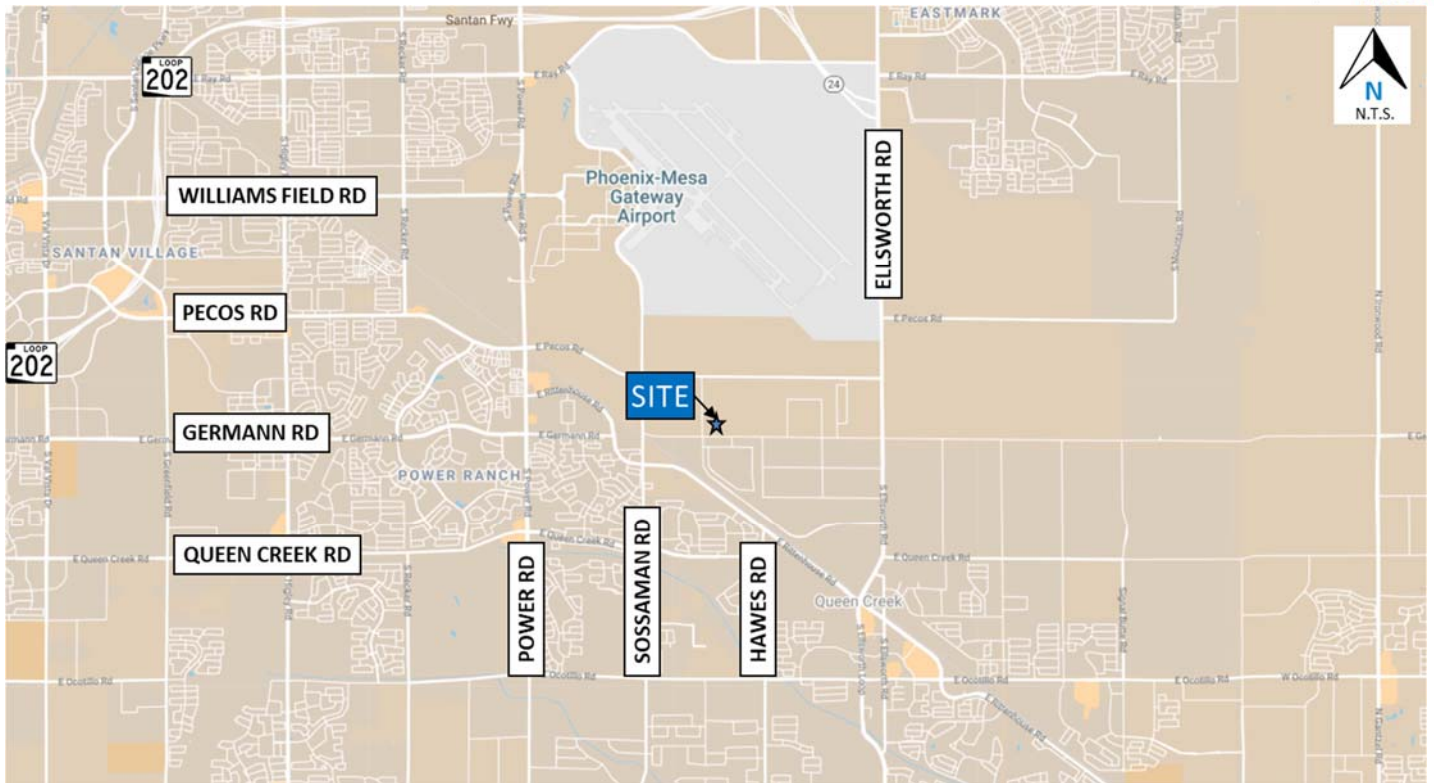


Figure 1: Location Map



Figure 2: Aerial Map of Local Area

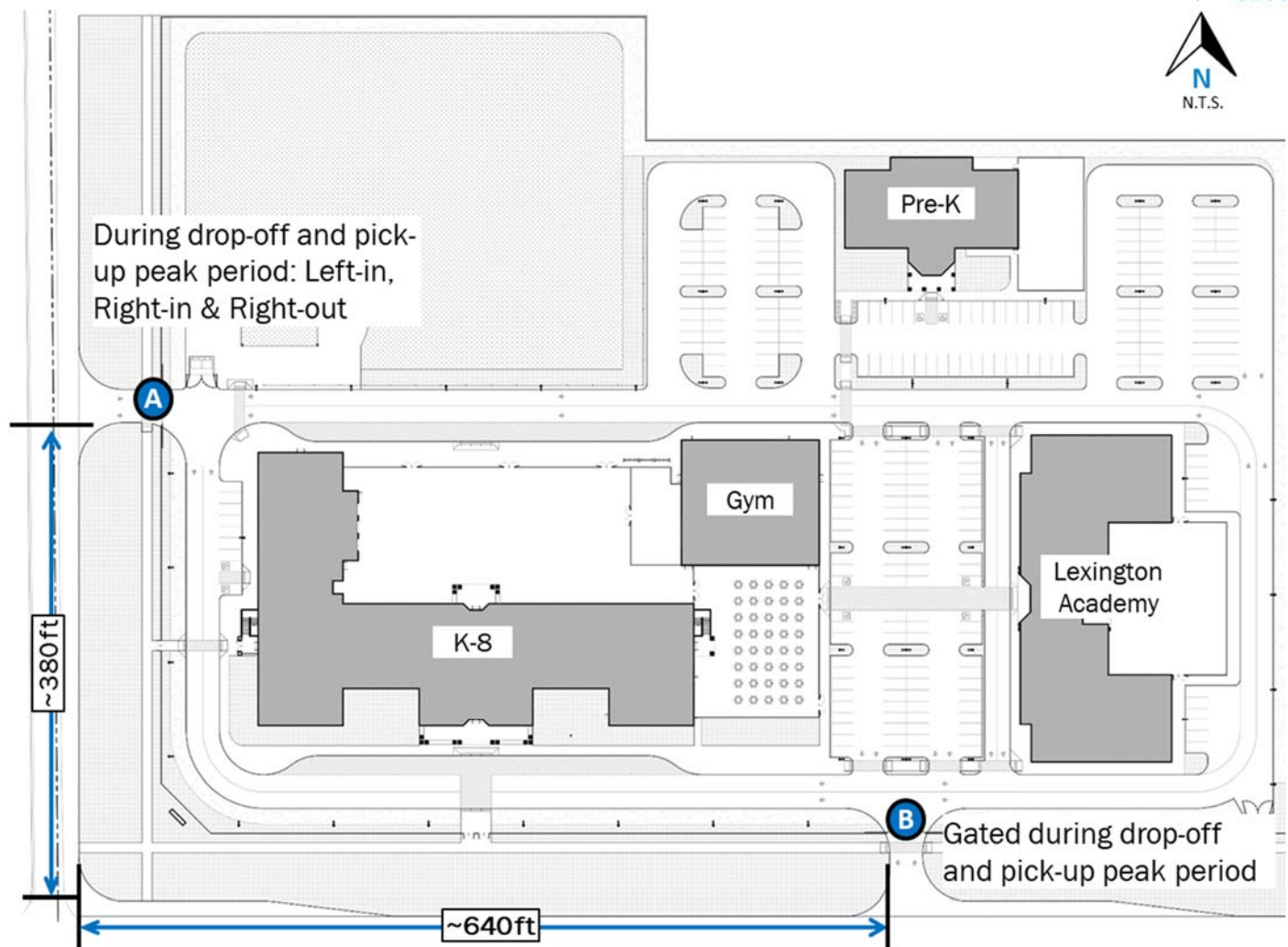


Figure 3: Site Plan

DESCRIPTION OF EXISTING TRANSPORTATION SYSTEM

The existing roadway geometry and intersection control is depicted in **Figure 4**. The proposed development will have access to 80th Street and Germann Road.

ROADWAYS

80th Street/196th Street begins south of Germann Road as a collector roadway serving residential neighborhoods and travels north to Pecos Road. North of Germann Road, 80th Street is currently a half-street with one lane in direction. Sidewalk is provided on the west side of 80th Street along the frontage of developed parcels. South of Germann Road, 196th Street is a half-street with one lane in direction and sidewalk on the east side. Further south, 196th Street is fully constructed with one lane in each direction divided by a raised median with sidewalks and bike lanes in each direction. Per the 24-hour traffic counts collected on Tuesday August 3, 2021 for this study, the daily traffic volume on 80th Street is 3,429 vehicles per day (vpd) north of Germann Road and 2,944 vpd south of Germann Road.

Germann Road begins at Sossaman Road near the railroad and travels east five miles before terminating at Moeur Road. Germann Road is primarily a two-lane roadway with the exception of the segment between 80th Street and Hawes Road, which has half-street improvements with two lanes in the eastbound direction. The posted speed limit is 45 mph. Per the 24-hour traffic counts collected on Tuesday August 3, 2021 for this study, the daily traffic volume on Germann Street is 6,345 vehicles per day (vpd) west of 80th Street and 7,038 vpd east of 80th Street.

Pecos Road travels 13 miles east providing a connection between Mesa, Gilbert, and Chandler. Pecos Road travels 1.5 mile west before terminating at Ellsworth Road. In the local area, Pecos Road is two-lane roadway with no curbs or sidewalks. The posted speed limit is 45 mph. Per the 24-hour traffic counts collected on Tuesday August 3, 2021 for this study, the daily traffic volume on Pecos Road is 9,203 vehicles per day (vpd) west of 80th Street.

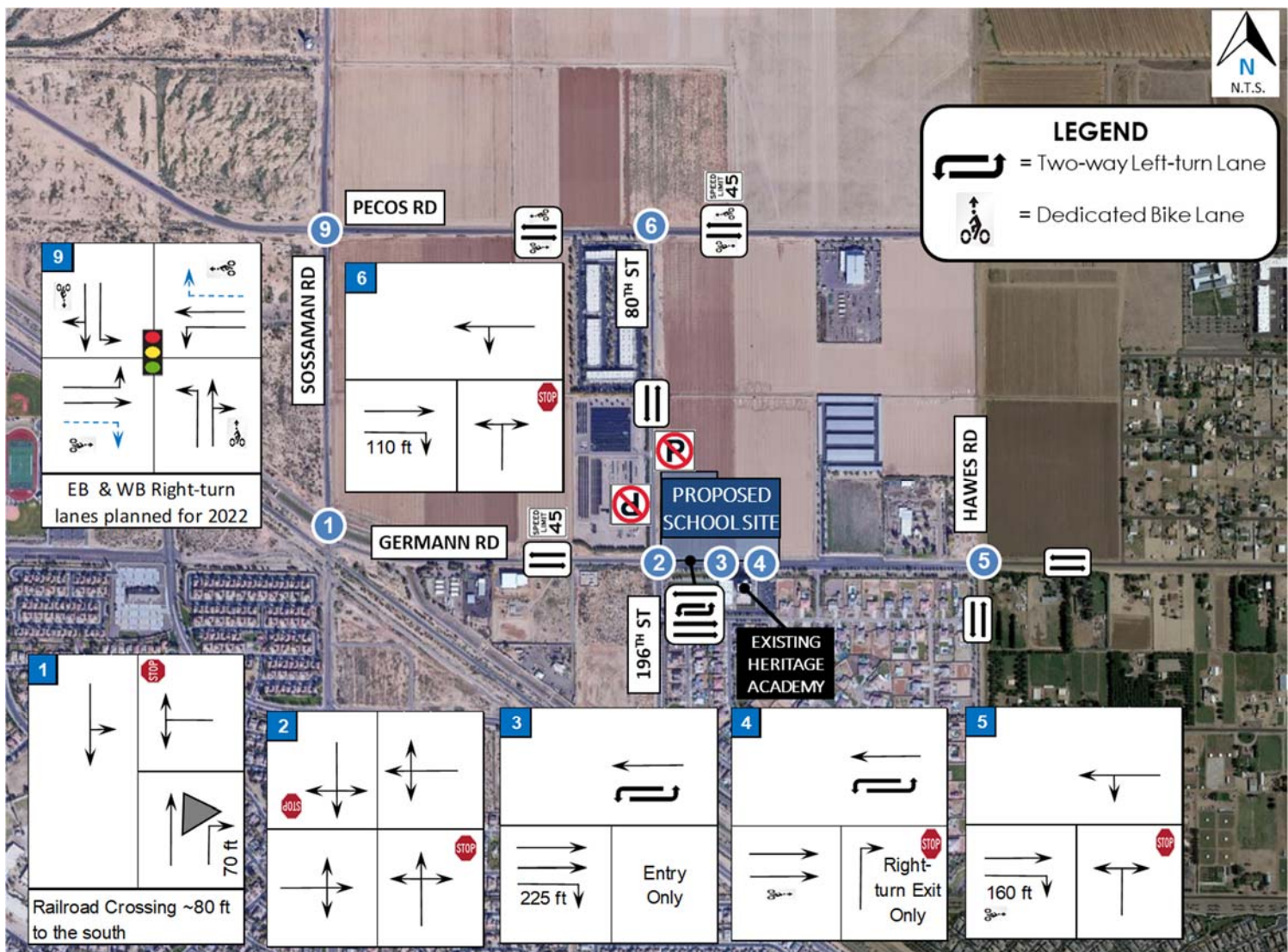


Figure 4: Existing Lane Configuration and Traffic Control

STUDY INTERSECTIONS

The existing intersection lane configuration and traffic control is depicted in **Figure 4**, and the traffic control is also summarized in **Table 1**.

Table 1: Intersection Traffic Control

Intersection	Traffic Control
1. Sossaman Road & Germann Road	Minor Street Stop Control (WB)
2. 80 th Street/196 th Street & Germann Road	Minor Street Stop Control (NB/SB)
3. Existing West Driveway & Germann Road	Minor Street Stop Control (Entry Only)
4. Existing East Driveway & Germann Road	Minor Street Stop Control (NB, Exit Only)
5. Hawes Road & Germann Road	Minor Street Stop Control (NB)
6. 80 th Street & Pecos Road	Minor Street Stop Control (NB)
9. Sossaman Road & Pecos Road	Traffic Signal

PEDESTRIAN AND BICYCLE FACILITIES

Dedicated bicycle lanes are provided on Pecos Road and segments of Germann Road where half-street improvements have been constructed. The ultimate arterial cross-section will provide dedicated bike lanes. Sidewalk is provided adjacent to the frontage of developed parcels including the existing school site. Due to the absence of existing traffic signals, there is currently no crosswalks on Germann Road. There are no shared-use paths in the local area.

TRANSIT FACILITIES

The nearest transit route is at the ASU Polytechnic Campus to the north and at Power Road and Williams Field Road.

EXISTING TRAFFIC VOLUMES

Approach and departure traffic volumes were collected on Tuesday August 3, 2021 for 24 hours in 15-minute intervals on the following roadway segments:

- ❖ Pecos Road, west of 80th Street
- ❖ 80th Street, south of Pecos Road
- ❖ 80th street, north of Germann Road
- ❖ 196th Street, south of Germann Road
- ❖ Germann Road, west of 80th Street
- ❖ Germann Road, east of 80th Street
- ❖ Germann Road, west of Hawes Road
- ❖ Germann Road, east of Hawes Road
- ❖ Hawes Road, south of Germann Road

Four-hour turning movement traffic counts were also obtained on Tuesday August 3, 2021 from 7:00 AM to 9:00 AM, and from 2:30 PM to 6:30 PM (to capture peak hour of school) at the following existing intersections:

- ❖ Sossaman Road & Germann Road
- ❖ 80th Street/196th Street & Germann Road
- ❖ Existing West Driveway & Germann Road
- ❖ Existing East Driveway & Germann Road
- ❖ Hawes Road & Germann Road
- ❖ 80th Street & Pecos Road

The peak hours analyzed in the study correspond to AM peak hour of 7:30 AM to 8:30 AM and 3:00 PM to 4:00 PM in the afternoon to align with the school afternoon peak hour. **Figure 5** depicts the existing weekday traffic volumes. Existing traffic volumes for the intersection of Sossaman Road and Pecos Road were obtained from the *American Leadership Academy of Applied Technology Traffic Impact Study* prepared by Lokahi in September 2021. The existing traffic volumes are provided in **Appendix B** to this report.

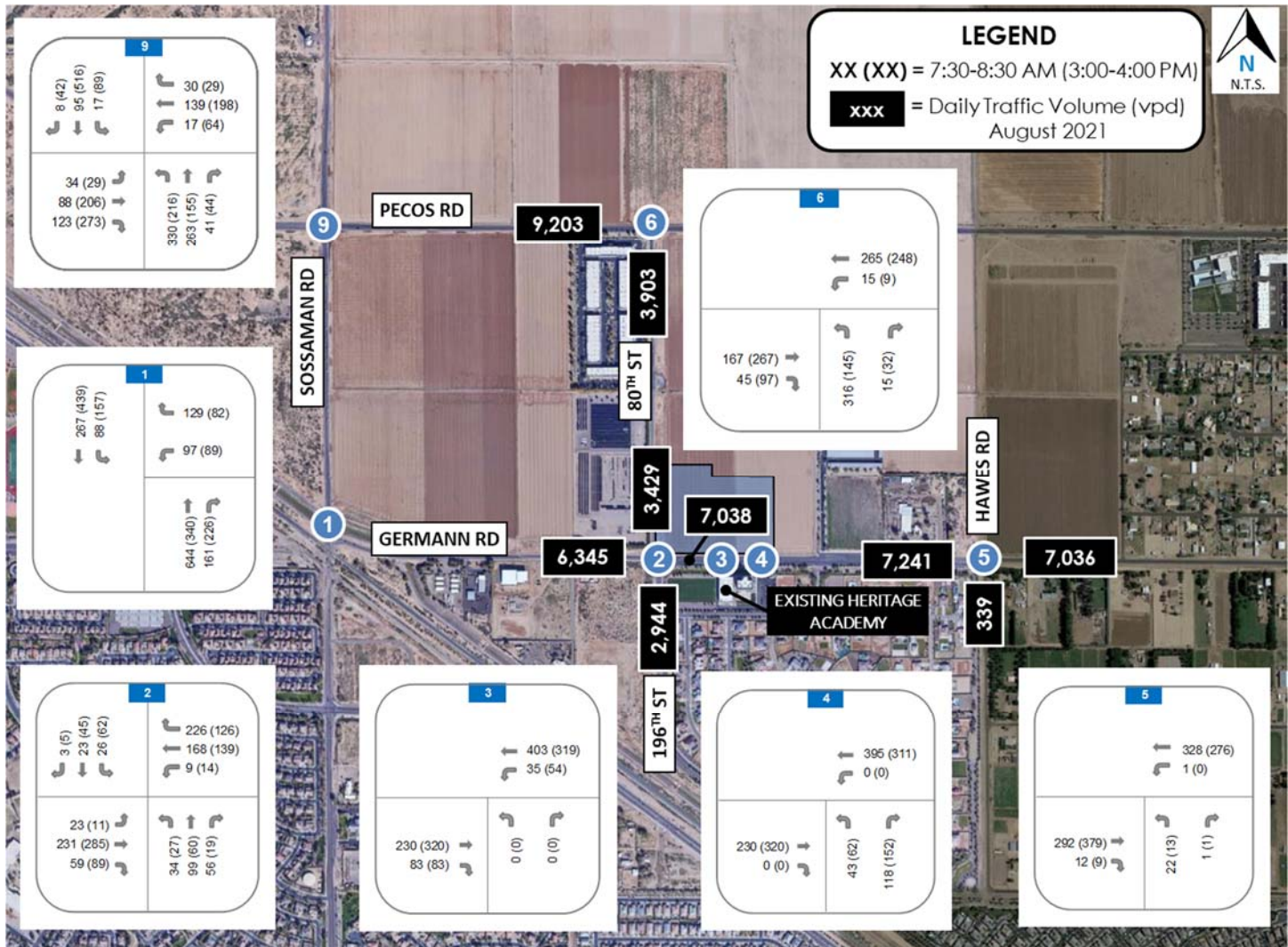


Figure 5: Existing Weekday Traffic Volumes

EXISTING LEVEL-OF-SERVICE ANALYSIS

The ability of a transportation system to transmit the transportation demand is characterized as its level-of-service (LOS). Level-of-service is a rating system from “A”, representing the best operation with the least delay, to “F”, representing the worst operation with the greatest delay. Typically, level-of-service “D” or “E” is considered the minimum acceptable operation. The appropriate reference for level-of-service operation is the *Highway Capacity Manual*, 6th Edition published by the Transportation Research Board in 2016.

This manual considers the average delay per vehicle as the measure to determine the level-of-service for both signalized and unsignalized intersections. For signalized intersections and for multi-way stop intersections, the delay and level-of-service are calculated for the intersection, each approach, and each turning movement. For unsignalized intersections the level-of-service is defined for each minor movement for two-way stop controls,

and is not defined for the major street approaches or for the entire intersection. **Figure 6** provides a diagram and **Table 2** lists the level-of-service criteria for both signalized and unsignalized intersections as stated in the *Highway Capacity Manual*.

Figure 6: Level-of-Service Criteria for Intersections

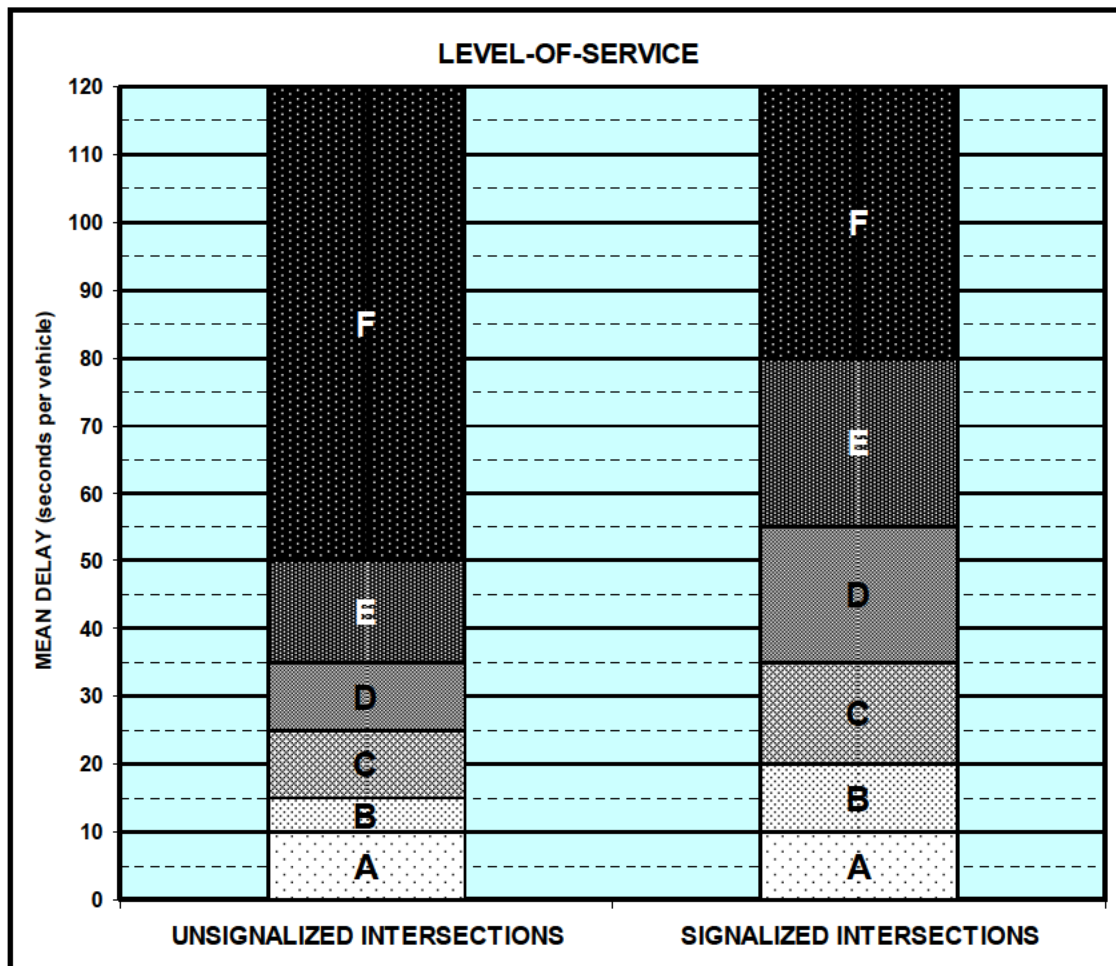


Table 2: Level-of-Service Criteria for Intersections

Level-of-Service	Average Delay (seconds per vehicle)	
	Unsignalized	Signalized
A	≤ 10	≤ 10
B	> 10 to 15	> 10 to 20
C	> 15 to 25	> 20 to 35
D	> 25 to 35	> 35 to 55
E	> 35 to 50	> 55 to 80
F	> 50	> 80

Synchro software was utilized to calculate the average delay and level-of-service for the study intersections during the peak hours. The input and output for these analyses are provided as **Appendix C** to this report. **Table 3** provides a summary of the level-of-service and delay in seconds for the existing traffic conditions.

Table 3: Existing Level-of-Service Summary

Intersection	Traffic Control	Movement/ Approach	Existing Conditions			
			AM Peak Hour		PM Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1 Sossaman Road & Germann Road	Stop Controlled (WB)					
		WB Approach	71.3	F	46.8	E
		SB Left	9.5	A	8.5	A
2 80th Street & Germann Road	Stop Controlled (NB/SB)					
		EB Left	9.0	A	8.3	A
		WB Left	8.3	A	8.7	A
		NB Approach	67.0	F	32.1	D
		SB Approach	61.5	F	72.0	F
3 Existing West Driveway & Germann Road	Enter Only					
		WB Left	8.2	A	8.7	A
4 Existing East Driveway & Germann Road	Stop Controlled (NB, Exit Only)					
		NB Approach	16.5	C	22.0	C
5 Hawes Road & Germann Road	Stop Controlled (NB)					
		WB Left	7.9	A	0.0	A
		NB Approach	14.0	B	14.1	B
6 80th Street & Pecos Road	Stop Controlled (NB)					
		WB Left	7.8	A	8.3	A
		NB Approach	88.9	F	22.4	C
9 Sossaman Road & Pecos Road	Traffic Signal					
		EB Left	24.7	C	24.3	C
		EB Thru	31.9	C	109.6	F
		EB Right	31.9	C	109.6	F
		EB Approach	30.9	C	104.7	F
		WB Left	25.9	C	27.9	C
		WB Thru	31.8	C	29.7	C
		WB Right	31.8	C	29.7	C
		WB Approach	31.2	C	29.3	C
		NB Left	12.1	B	31.6	C
		NB Thru	15.3	B	23.9	C
		NB Right	15.3	B	23.9	C
		NB Approach	13.6	B	27.9	C
		SB Left	15.7	B	18.8	B
		SB Thru	18.9	B	59.8	E
		SB Right	18.9	B	59.8	E
		SB Approach	18.5	B	54.1	D
		INTERSECTION	20.5	C	58.2	E

The Sossaman Road/Germann Road, 80th Street/Germann Road, and 80th Street/Pecos Road intersections experience significant delay during the peak hours with existing conditions as unsignalized intersections and two-lane roadways. Dedicated right-turn lanes in the eastbound and westbound directions are planned at the intersection of Sossaman Road and Pecos, which will improve its level of service.

TRAFFIC SIGNAL WARRANT ANALYSIS WITHOUT SITE

Methodology

The *Manual on Uniform Traffic Control Devices (MUTCD)*, *Federal Highway Administration (FHWA)*, 2009, describes nine warrants that are used to determine if a traffic signal should be considered for installation at an intersection. A traffic signal is warranted if one or more of the warrants are satisfied. Warrants #1 (Eight Hour Volume) and #2 (Four Hour Vehicular Volume) were used to evaluate the need to signalize the existing study intersections. Based on existing conditions, availability of information, and applicability, the remaining warrants (#3, #4, #5, #6, #7, #8 and #9) are not applicable.

Warrant #1 (Eight Hour Volume) is satisfied when for at least eight (8) hours of an average day, specific traffic volume levels are met for both the major and minor streets (Condition A – Minimum Vehicular Volume). The MUTCD states these volumes depending on the vehicles per hour (vph) combined for both approaches of the major street, and for the highest volume approach on the minor street. The values vary depending on the number of approach lanes and speed limit. Warrant #1 also applies to operating conditions where the major street traffic levels are sufficiently high that traffic entering or crossing from a minor street suffers excessive delay (Condition B – Interruption of Continuous Traffic). The warrant is satisfied when for each of any of the same eight (8) hours of an average day, specific traffic volume levels are met for both the major and minor streets.

Warrant #2 (Four Hour Volume) is met when, for any four hours of the average day on both the major and minor streets, the hourly approach volumes are above the plotted curve contained in the MUTCD.

Results

It is assumed that two minor street approach lanes would be provided with signal installation. To satisfy Warrant #1A (Minimum Vehicular Volume), a major street volume of at least 420 vph and a minor street volume of 140 vph is required for 8 hours of an average day based on approaches with two or more lanes. To satisfy Warrant #1B (Interruption of Continuous Traffic), a major street volume of at least 630 vph and a minor street volume of 70 vph is required for 8 hours of an average day based on approaches with two or more lanes.

	Condition A Minimum Vehicular Volume	Condition B Interruption of Continuous Traffic	Combination of Conditions A & B ²	
Criteria - Major (vph) Total of Both Approaches	420	630	336	504
Criteria - Minor (vph) Highest Approach	140	70	112	56

To satisfy Warrant #2 (Four-Hour Vehicular), a major street volume of at least 600 vph is required for 4 hours of an average day based on approaches with two or more lanes and a minor street volume of 175 vph or less.

Table 4 summarizes the existing intersection hourly approach traffic volumes by time of day. The results of the analysis are included in **Appendix C**.

Table 4: Existing Intersection Approach Traffic Volumes

EXISTING TRAFFIC VOLUMES				
80TH STREET & GERMANN ROAD				
HOUR BEGIN TIME	APPROACH TRAFFIC VOLUMES			
	NB	SB	EB	WB
1:00 AM	0	2	8	2
2:00 AM	0	1	6	7
3:00 AM	0	0	3	5
4:00 AM	2	0	9	8
5:00 AM	17	8	31	55
6:00 AM	70	13	79	102
7:00 AM	181	28	120	245
8:00 AM	421	48	354	504
9:00 AM	140	46	191	233
10:00 AM	90	21	133	183
11:00 AM	67	48	172	164
12:00 PM	107	60	180	200
1:00 PM	104	74	246	169
2:00 PM	107	98	227	189
3:00 PM	118	103	263	251
4:00 PM	177	112	385	279
5:00 PM	170	158	377	220
6:00 PM	75	152	329	141
7:00 PM	49	118	258	113
8:00 PM	41	82	128	113
9:00 PM	13	48	119	71
10:00 PM	7	26	59	36
11:00 PM	4	11	32	20
12:00 AM	3	8	26	9
TOTAL	1,963	1,265	3,735	3,319

EXISTING TRAFFIC VOLUMES				
80TH STREET & PECOS ROAD				
HOUR BEGIN TIME	APPROACH TRAFFIC VOLUMES			
	NB	SB	EB	WB
1:00 AM	0		11	9
2:00 AM	0		9	11
3:00 AM	0		5	5
4:00 AM	2		4	34
5:00 AM	17		36	79
6:00 AM	70		76	161
7:00 AM	181		132	305
8:00 AM	421		190	690
9:00 AM	140		219	349
10:00 AM	90		150	279
11:00 AM	67		196	260
12:00 PM	107		206	278
1:00 PM	104		208	287
2:00 PM	107		236	328
3:00 PM	118		254	352
4:00 PM	177		364	393
5:00 PM	170		394	402
6:00 PM	75		356	305
7:00 PM	49		310	257
8:00 PM	41		243	211
9:00 PM	13		161	134
10:00 PM	7		98	75
11:00 PM	4		47	42
12:00 AM	3		30	22
TOTAL	1,963	0	3,935	5,268

The existing minor street volumes meet warrants for the installation of a traffic signal at both the 80th Street/Germann Road and 80th Street/Pecos Road intersections. However, the major street volumes do not fully satisfy the requirement. Utilizing a 3% annual growth rate, the major street volumes are expected to be met at the 80th Street/Germann Road intersection by horizon year 2022. By horizon year 2030, the major street volumes are expected to be met at the 80th Street/Pecos Road intersection.

PROPOSED DEVELOPMENT

SITE LOCATION, LAND USE, AND ACCESS

A new Heritage Gateway Charter School site is proposed on the northeast corner of 80th Street and Germann Road in Mesa, Arizona. The proposed Pre-K through 8th grade school campus will have 1,060 students at full build-out including 100 pre-k students. Lexington Academy, a school specializing in autism, is also included on campus and will have a maximum of 180 students.

An existing Heritage Gateway Charter School exists in the southeast corner of the intersection and currently serves 6th grade through 12th grade. When the new campus is constructed, the existing school will serve 9th grade through 12th grade. Queen Creek has jurisdiction of Germann Road, and the existing school south of Germann Road is in Queen Creek. Two driveways are proposed, one on 80th Street and one on Germann Road. The estimated opening year is 2022.

The student enrollment per horizon year is summarized in **Table 5**. The existing site that currently serves 6-12 will serve 9-12 when the new school site is constructed. The 9-12 school enrollment will be 575 students, which is less than the current enrollment of almost 790 students. Therefore, the operation of the existing school is expected to improve. The site plan for the proposed new school is previously depicted in **Figure 3**. The most recent site plan is included in **Appendix A**.

Table 5: Student Enrollment

Horizon Year	Pre-K	K-5	6-8	Total Student Enrollment
2022-23	80	450	330	860
2023-24	100	560	340	1,000
2024-25	100	600	360	1,060

The preschool and Lexington Academy will have different drop-off and pick-up times than the K-8 school.

TRIP GENERATION

The trip generation for the project was estimated utilizing the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition*. The manual contains data collected by various transportation professionals for a wide range of different land uses. The data summarized in the manual include average rates and equations that have been established correlating the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The manual provides information for daily and peak hour trips.

ITE Land Use Code 537 – Charter Elementary School was utilized to estimate trips. The trips were estimated for all 1,240 students expected on campus including the preschool and Lexington Academy. This is a conservative approach since the morning drop-off times differ by 30 minutes and the afternoon pick-up time differs by an hour.

Table 6 summarizes the trip generation for the proposed development for opening year and full build-out, and **Appendix D** provides the generated trip calculation.

Table 6: Trip Generation

DESCRIPTION OF LAND USE					VEHICLE GENERATED TRIPS						
					Daily	AM Peak Hour			PM Peak Hour		
Phase	Land Use	ITE LUC	SIZE		Total	Enter	Exit	Total	Enter	Exit	Total
Opening Year	Charter Elementary School	537	860 Students		1,591	519	461	980	273	320	593
Full Build-out	Charter Elementary School	537	1240 Students		2,294	749	665	1,414	394	462	856

Opening year of the new school (860 students) is anticipated to generate 1,591 weekday daily trips (entering/exiting) with 980 trips (entering/exiting) during the AM peak hour and 593 trips (entering/exiting) during PM Peak Hour.

Full build-out of the school (1,260 students) is anticipated to generate 2,294 weekday daily trips (entering/exiting) with 1,414 trips (entering/exiting) during the AM peak hour and 856 trips (entering/exiting) during PM Peak Hour.

ON-SITE CIRCULATION AND QUEUEING

The City of Mesa requires that a minimum number of vehicles be accommodated on-site. A value of 0.15 shall be required for magnet, charter, and private schools. A distance of 25 feet was assumed for each vehicle to calculate the necessary queue length. The calculated queue length per school horizon year is summarized in **Table 7**. The preschool and Lexington Academy student enrollment is not included in the calculation, since the drop-off and pick-up times are staggered from the K-8 school.

Table 7: On-site Queue Calculation

Horizon Year	Student Enrollment	Queue
2024-25	960	3,600 feet

Vehicles will enter the drop-off and pick-up line at Driveway A on 80th Street. Vehicles may enter by making a southbound left-turn or northbound right-turn into the site from 80th Street. Exiting vehicles are prohibited to a right-turn only. Driveway B on Germann Road will only be utilized during off peak times.

The queuing and circulation for the ultimate conditions with 960 students is depicted in **Figure 7**. When utilizing dual lanes, the site plan provides for 4,094 feet of queuing on-site, which exceeds the calculated required queue of 3,600 feet. The provided on-site queueing results in a rate of 4.26 feet per student or 0.17 vehicles per student.

Dual lanes are effective by stopping vehicles together in both lanes within a designated area of the drop-off/pick-up locations. After all students are safely unloaded/loaded, then the vehicles may proceed and the next group of vehicles enter the designated area. Students should not be dropped off or picked up until all vehicles are pulled forward and stopped and signaled by a staff member.

TRIP DISTRIBUTION AND ASSIGNMENT

The generated trips for the new school have been distributed and assigned to the surrounding street system to estimate future traffic to and from the new school. The distribution was based on existing traffic patterns and population areas including new construction such as Eastmark and State Road 24. The distribution percentages utilized in this analysis are depicted in **Figure 8**. Utilizing the trip generation and distribution, new trips from the proposed school were assigned to the study intersections and are depicted in **Figure 9** for opening year and **Figure 10** for full build-out.

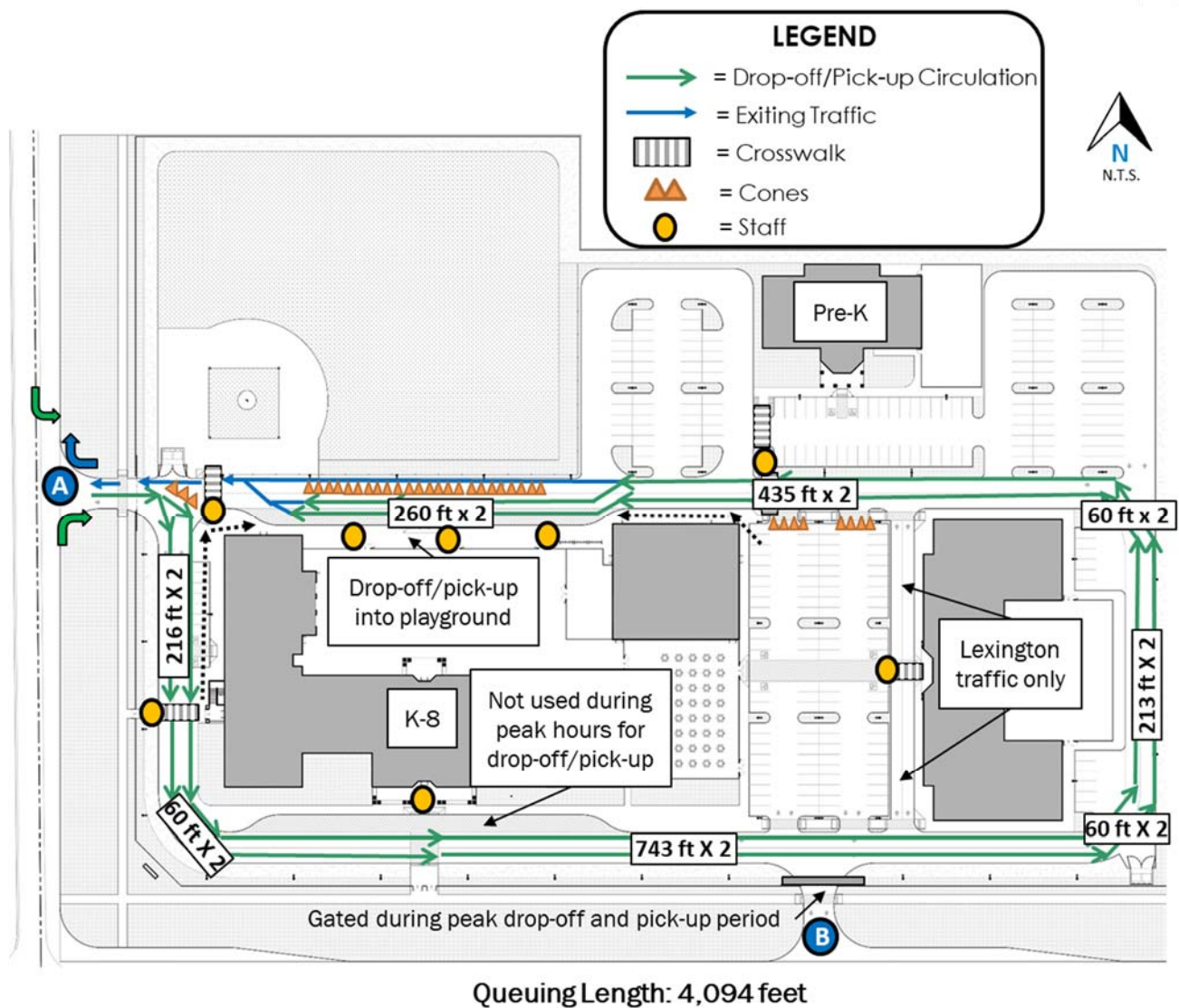


Figure 7: School Circulation for Ultimate Condition

FUTURE TRAFFIC

BACKGROUND TRAFFIC VOLUMES

Per the request of Queen Creek, an annual growth rate of 5% was utilized to estimate the background traffic volumes until 2025 and then 2% annually after 2025. Also included in the background traffic volumes are the site volumes for the future ALA charter school described in the *American Leadership Academy of Applied Technology Traffic Impact Study* prepared by Lokahi in September 2021. The background traffic volumes are depicted in **Figure 11** for horizon year 2022 and **Figure 12** for horizon year 2030.

TOTAL TRAFFIC VOLUMES

The weekday traffic volumes for the 2022 background with Heritage Gateway opening year scenario are depicted in **Figure 13**, and the 2030 background with Heritage Gateway full build-out scenario are depicted in **Figure 14**. The existing school traffic volumes are part of the total traffic volumes for a conservative analysis, since there will be a partial overlap of school traffic between the two sites.

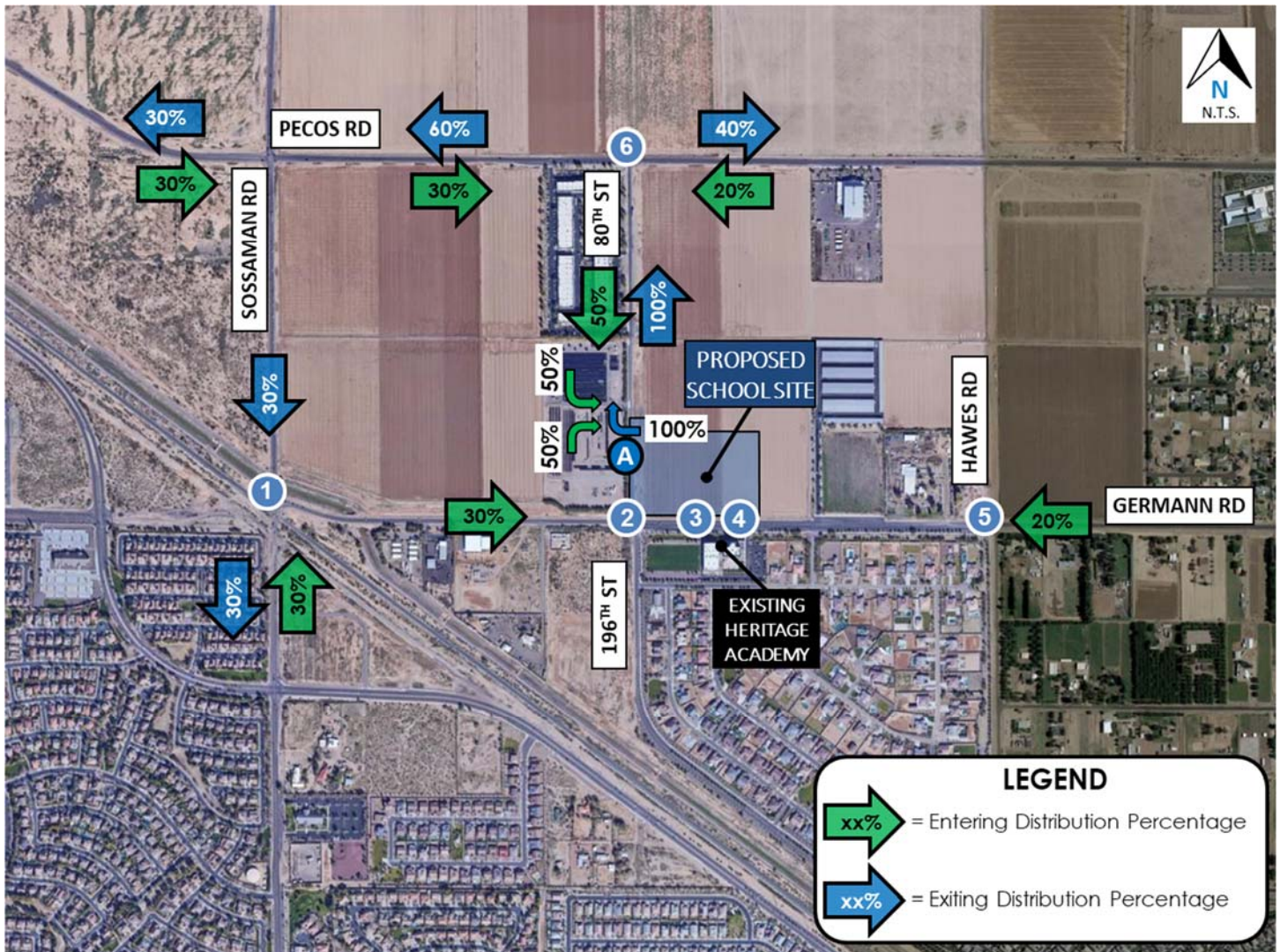


Figure 8: Trip Distribution



LEGEND

XX (XX) = 7:30-8:30 AM (3:00-4:00 PM)

xxx = Daily Traffic Volume (vpd)

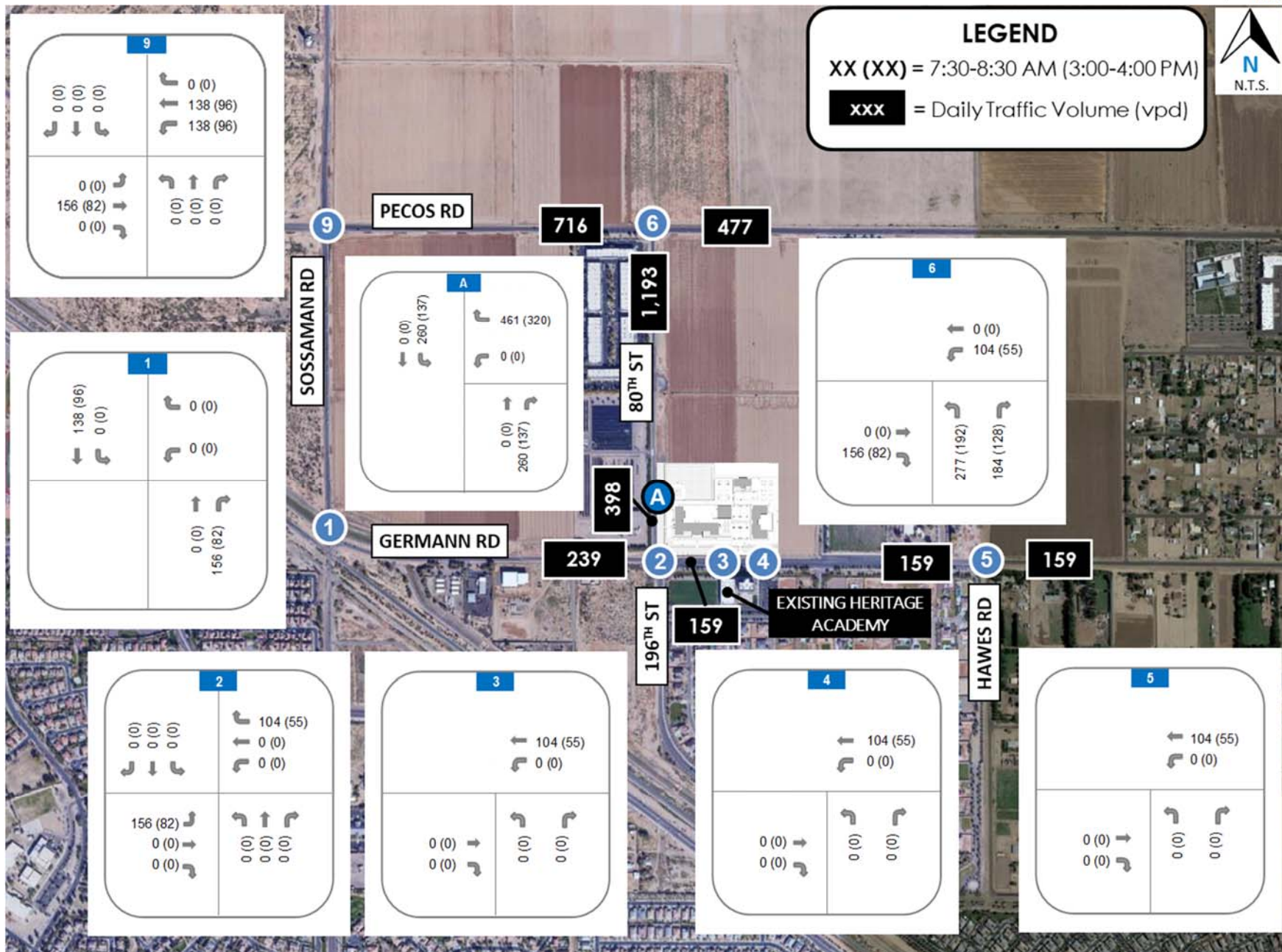


Figure 9: Heritage Gateway Charter School Opening Year (2022) Site Weekday Traffic Volumes





LEGEND

XX (XX) = 7:30-8:30 AM (3:00-4:00 PM)

xxx = Daily Traffic Volume (vpd)

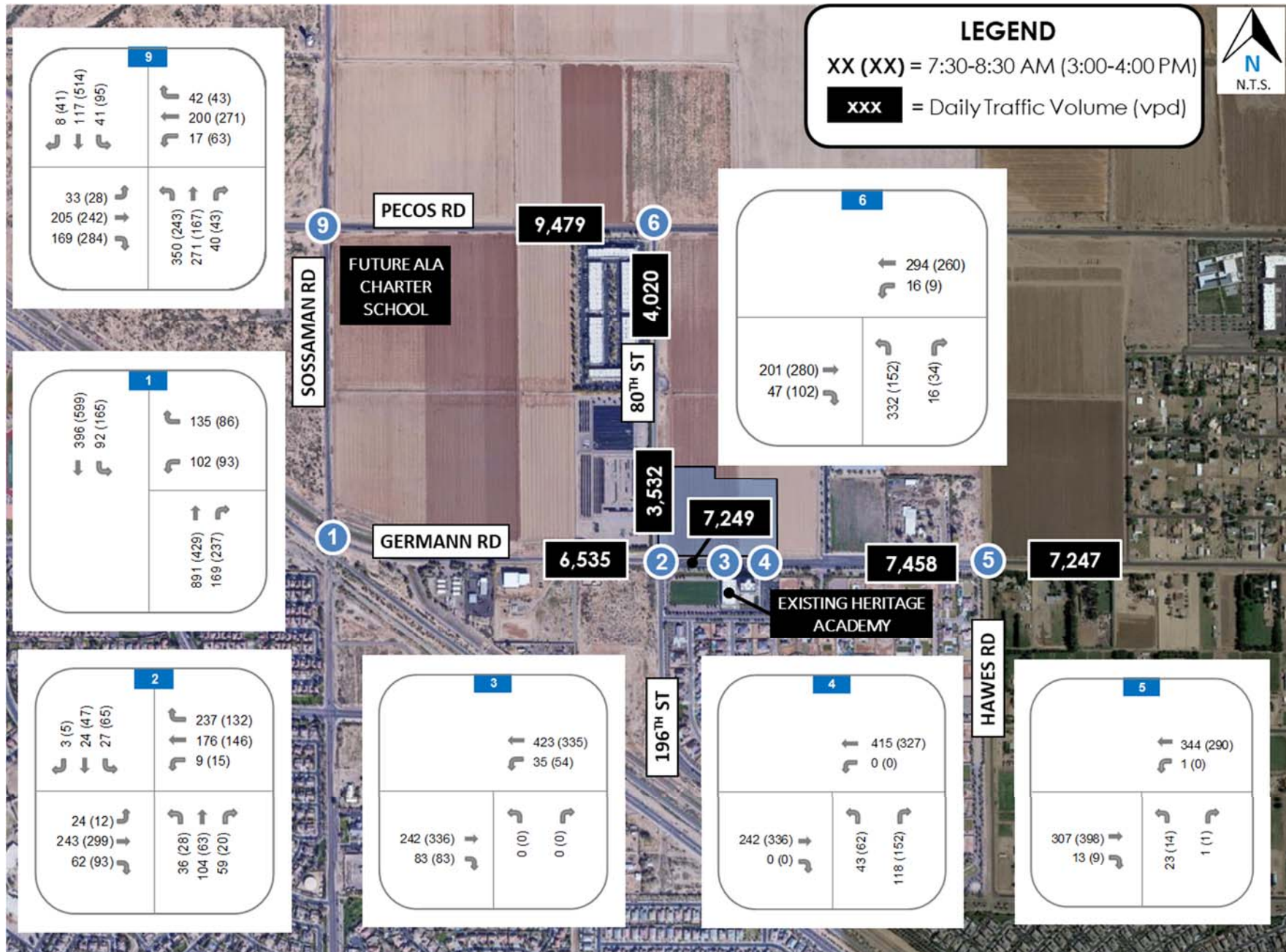


Figure 11: Background 2022 with ALA Weekday Traffic Volumes (without Heritage Academy)



LEGEND

XX (XX) = 7:30-8:00 AM (3:00-4:00 PM)

xxx = Daily Traffic Volume (vpd)

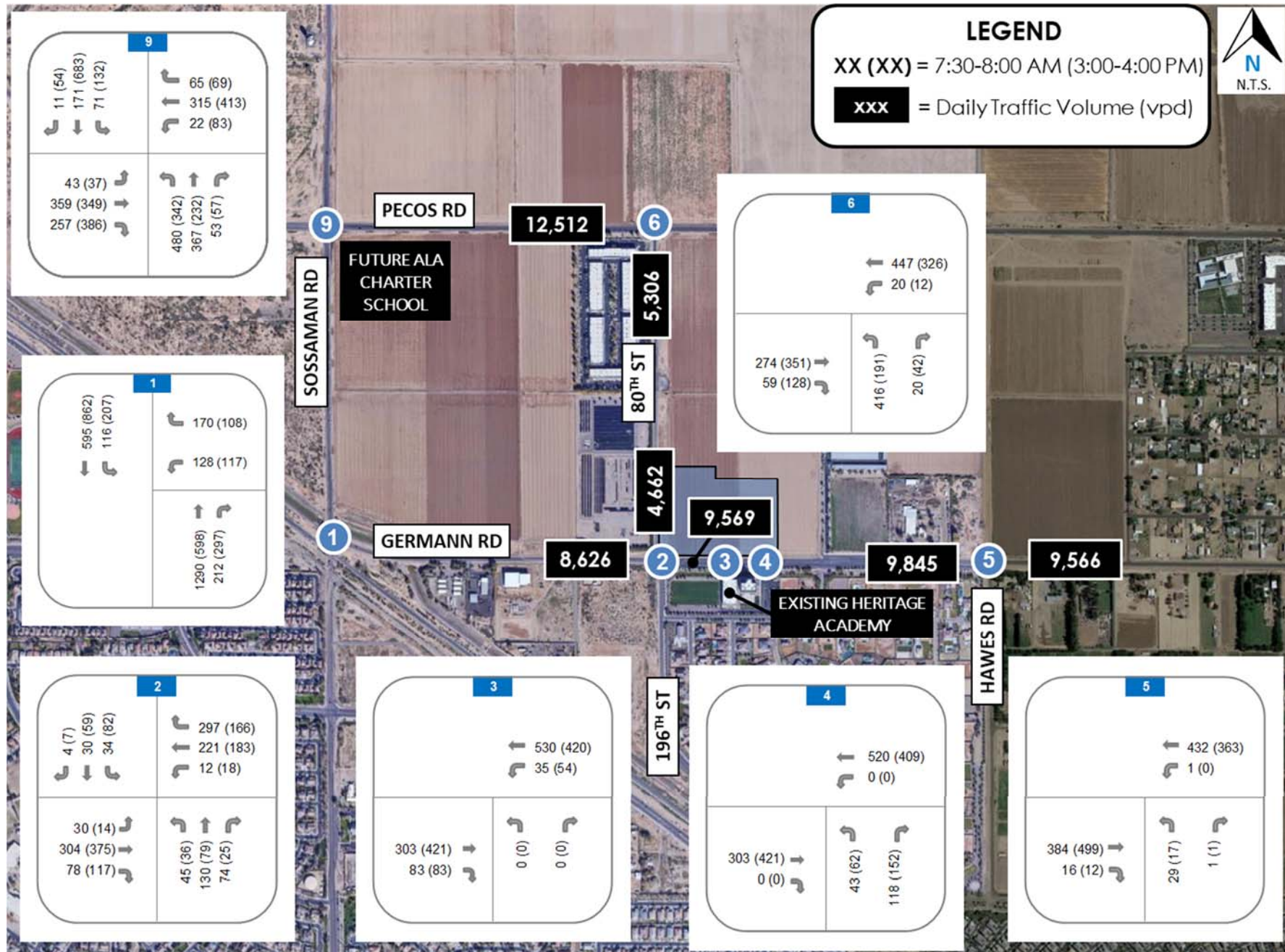


Figure 12: Background 2030 with ALA Weekday Traffic Volumes (without Heritage Academy)



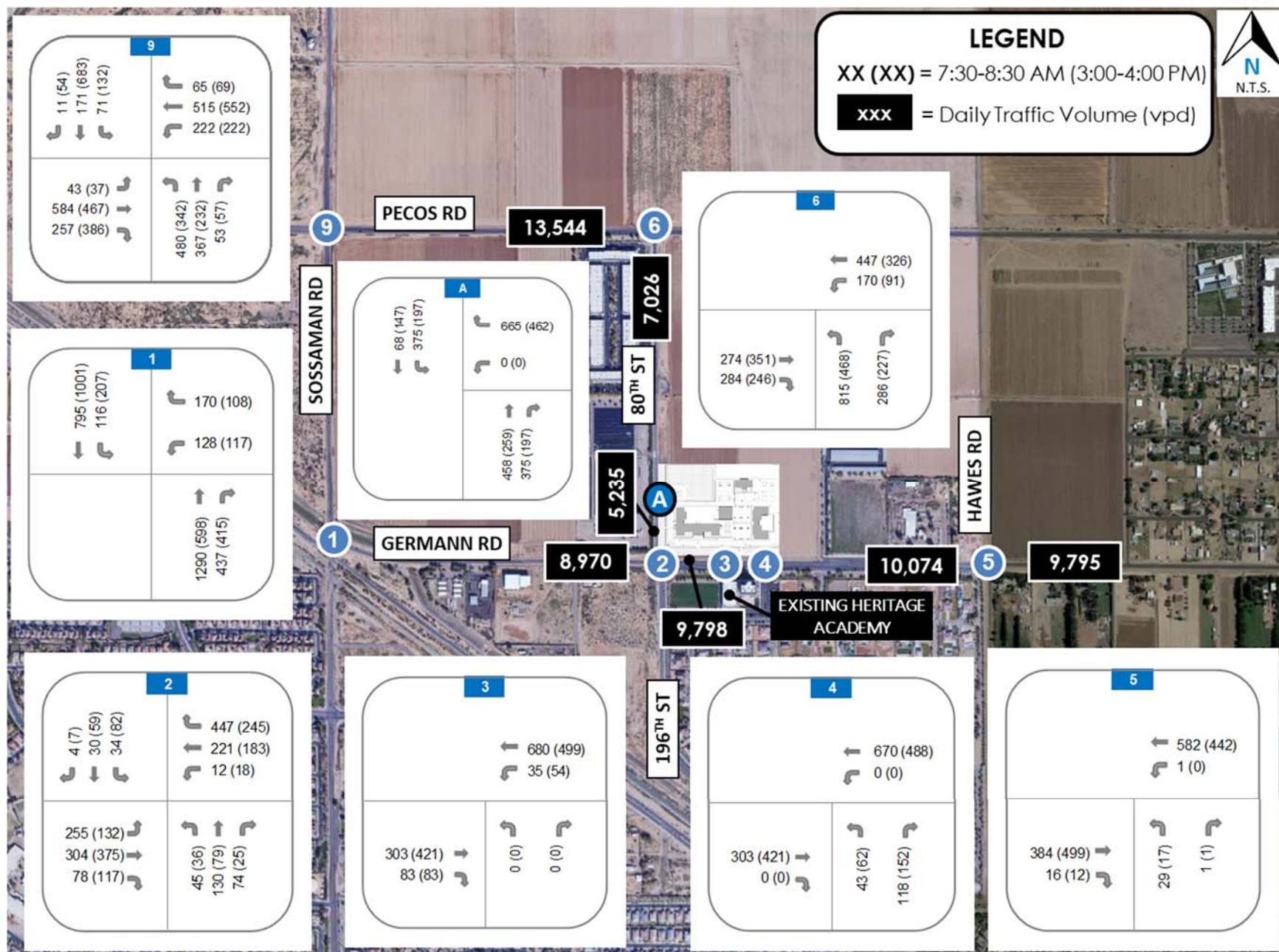


Figure 14: 2030 Total Traffic Volumes with Heritage Academy Full build-out

FUTURE TRAFFIC ANALYSES

FUTURE LEVEL-OF-SERVICE

The level-of-service for the horizon years was analyzed for the study intersections and site accesses. Synchro software was utilized to calculate the average delay and level-of-service. The input and output for these analyses are provided as **Appendix E** for horizon year 2022 and **Appendix F** for horizon year 2030. A summary of the level-of-service and delay in seconds is provided in Error! Not a valid bookmark self-reference. for the horizon year 2022 and in **Table 9** for horizon year 2030. **Table 10** provides a summary of the level-of-service with traffic signals installed at the 80th Street/Germann Road and 80th Street/Pecos Road intersections.

The **80th Street/Germann Road** and **80th Street/Pecos Road** intersections experience significant delay with existing conditions. With the proposed school, the delay will increase. The minor street traffic volumes meet the requirements for a traffic signal with existing counts, and the major street traffic volumes are expected to be satisfied in the future as the area is developed. Utilizing a 3% annual growth rate, the major street volumes are expected to be met at the 80th Street/Germann Road intersection in horizon year 2022. By horizon year 2030, the major street volumes are expected to be met at the 80th Street/Pecos Road intersection. Therefore, for the future level-of-service, traffic signals were assumed at these intersections. There is a high volume of existing traffic (404 vph in the AM peak of intersection and 316 vph during AM peak of school) making a northbound left-turn at the 80th Street/Pecos Road intersection.

The **Sossaman Road/Germann Road** intersection also experiences delay with existing conditions. The horizon year for improving this intersection is unknown, and therefore was analyzed as unsignalized in this study. Hourly traffic volumes were not collected at this intersection for this analysis. However, it is expected that traffic volumes will be met for the installation of a traffic signal in the near future if not already.

The exiting approach of the school driveway on 80th Street will operate at level-of-service 'F' during the AM peak hour of horizon year 2030. This is due to the high number of vehicles heading north on 80th Street during the AM peak hour. A future traffic signal at the intersection of 80th Street and Germann Road has the potential to provide gaps on 80th Street.

The exiting approach of the existing east school driveway on Germann Road will also operate at level-of-service 'F' during the AM peak hour of horizon year 2030. This is due to increased background traffic on Germann Road during the AM peak hour. This intersection was analyzed utilizing the existing school traffic volumes. With construction of the new school, the existing school will experience a lower enrollment from 786 students to 575 high school students, thus improving its operation.

The **Sossaman Road/Pecos Road** intersection will have movements with a level of service 'F' in horizon year 2030 during the PM peak hour with background traffic volumes. The Heritage Academy will increase delay. Additional improvements are recommended in year 2030, specifically additional through lanes on Pecos Road.

Table 8: Level-of-Service Summary – Horizon Year 2022

Intersection	Traffic Control	Movement/ Approach	2022 Background plus ALA				2022 Background plus ALA & Site Opening Year			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay (Sec/Veh)	LOS	Delay (Sec/Veh)	LOS	Delay (Sec/Veh)	LOS	Delay (Sec/Veh)	LOS
1 Sossaman Road & Germann Road	Stop Controlled (WB)	<i>WB Approach</i>	366.3	F	62.8	F	510.6	F	247.3	F
		SB Left	10.9	B	8.6	A	10.9	B	8.9	A
2 80th Street & Germann Road	Stop Controlled (NB/SB)	<i>EB Left</i>	9.1	A	8.3	A	11.1	B	8.9	A
		WB Left	8.3	A	8.7	A	8.3	A	8.7	A
		<i>NB Approach</i>	94.7	F	37.8	E	850.9	F	106.1	F
		<i>SB Approach</i>	91.7	F	103.5	F	38.6	E	153.4	F
3 Existing West Driveway & Germann Road	Enter Only	<i>WB Left</i>	8.3	A	8.7	A	8.3	A	8.7	A
4 Existing East Driveway & Germann Road	Stop Controlled (NB, Exit Only)	<i>NB Approach</i>	17.4	C	23.9	C	21.5	C	28.1	D
5 Hawes Road & Germann Road	Stop Controlled (NB)	<i>WB Left</i>	8.0	A	0.0	A	8.0	A	0.0	A
		<i>NB Approach</i>	14.5	B	14.6	B	16.1	C	15.4	C
6 80th Street & Pecos Road	Stop Controlled (NB)	<i>WB Left</i>	7.9	A	8.4	A	9.4	A	12.7	B
		<i>NB Approach</i>	152.4	F	25.1	D	1815.4	F	585.2	F
7 80th Street & Driveway A	Stop Controlled (WB)	<i>WB Approach</i>	-		-		26.4	D	12.7	B
		SB Left	-		-		10.7	B	8.5	A
9 Sossaman Road & Pecos Road	Traffic Signal	<i>EB Left</i>	26.1	C	26.3	C	26.4	C	27.8	C
		EB Thru	32.2	C	33.8	C	48.8	D	44.2	D
		EB Right	32.2	C	45.2	D	33.1	C	48.3	D
		<i>EB Approach</i>	31.7	C	39.5	D	42.8	D	45.3	D
		WB Left	27.0	C	25.5	C	29.6	C	29.6	C
		WB Thru	34.4	C	31.2	C	35.9	D	39.7	D
		WB Right	29.6	C	27.6	C	26.5	C	26.8	C
		<i>WB Approach</i>	33.1	C	29.6	C	33.4	C	35.9	D
		NB Left	12.1	B	21.9	C	18.2	B	30.8	C
		NB Thru	16.7	B	19.4	B	23.7	C	22.2	C
		NB Right	16.7	B	19.4	B	23.7	C	22.2	C
		<i>NB Approach</i>	14.2	B	20.7	C	20.8	C	26.8	C
		SB Left	14.5	B	14.4	B	21.6	C	17.4	B
		SB Thru	19.2	B	36.9	D	27.8	C	52.7	D
		SB Right	19.2	B	36.9	D	27.8	C	52.7	D
		<i>SB Approach</i>	18.1	B	33.8	C	26.3	C	47.5	D
		INTERSECTION	22.7	C	31.8	C	31.2	C	40.0	D

Table 9: Level-of-Service Summary – Horizon Year 2030

Intersection		Traffic Control	Movement/ Approach	2030 Background				2030 Background Plus ALA & Site Build-out			
				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Delay (Sec/Veh)	LOS	Delay (Sec/Veh)	LOS	Delay (Sec/Veh)	LOS	Delay (Sec/Veh)	LOS
1	Sossaman Road & Germann Road	Stop Controlled (WB)									
WB Approach			517.7	F	401.9	F	4199.0	F	2736.3	F	
SB Left			10.9	B	9.2	A	15.0	B	10.1	B	
2	80th Street & Germann Road	Stop Controlled (NB/SB)									
EB Left			8.7	A	8.7	A	14.4	B	9.6	A	
WB Left			9.3	A	9.3	A	8.5	A	9.0	A	
NB Approach			473.5	F	155.4	F	4525.8	F	535.3	F	
SB Approach			*Not Computed	F	738.8	F	137.7	F	57.1	F	
3	Existing West Driveway & Germann Road	Enter Only									
WB Left			8.5	A	9.1	A	8.5	A	9.1	A	
4	Existing East Driveway & Germann Road	Stop Controlled (NB, Exit Only)									
NB Approach			24.7	C	41.9	E	42.5	E	63.0	F	
5	Hawes Road & Germann Road	Stop Controlled (NB)									
WB Left			8.2	A	0.0	A	8.2	A	0.0	A	
NB Approach			17.6	C	17.7	C	21.1	C	19.4	C	
6	80th Street & Pecos Road	Stop Controlled (NB)									
WB Left			8.0	A	8.7	A	10.5	B	9.8	A	
NB Approach			382.4	F	77.6	F	4367.8	F	1203.2	F	
7	80th Street & Driveway A	Stop Controlled (WB)									
WB Approach			-		-		323.7	F	32.9	D	
SB Left			-		-		28.0	D	9.9	A	
9	Sossaman Road & Pecos Road	Traffic Signal									
EB Left			26.6	C	24.9	C	31.1	C	31.1	C	
EB Thru			30.5	C	34.0	C	194.7	F	93.0	F	
EB Right			33.0	C	59.4	E	41.1	D	89.4	F	
EB Approach			31.2	C	47.2	D	142.1	F	88.9	F	
WB Left			27.3	C	25.1	C	83.9	F	82.1	F	
WB Thru			34.8	C	31.5	C	72.1	E	85.1	F	
WB Right			30.6	C	26.8	C	28.1	C	27.5	C	
WB Approach			33.4	C	29.6	C	71.8	E	79.6	E	
NB Left			13.6	B	44.8	D	36.6	D	59.7	E	
NB Thru			17.2	B	24.9	C	32.4	C	28.5	C	
NB Right			17.2	B	24.9	C	32.4	C	28.5	C	
NB Approach			15.3	B	35.3	D	34.7	C	45.4	D	
SB Left			17.5	B	21.2	C	26.9	C	26.6	C	
SB Thru			22.0	C	220.6	F	36.4	D	349.6	F	
SB Right			22.0	C	220.6	F	36.4	D	349.6	F	
SB Approach			21.4	C	193.1	F	33.8	C	300.7	F	
			INTERSECTION	22.0	C	92.6	F	78.8	E	134.9	F

Table 10: Level-of-Service Summary – Horizon Year 2030 – With Traffic Signal

Intersection	Traffic Control	Movement/ Approach	2030 Background Plus ALA & Site Full Build-out with Traffic Signal			
			AM Peak Hour		PM Peak Hour	
			Delay (Sec/Veh)	LOS	Delay (Sec/Veh)	LOS
2 80th Street & Germann Road	Traffic Signal					
		EB Left	19.6	B	7.9	A
		EB Thru	10.2	B	14.7	B
		EB Right	10.2	B	14.7	B
		<i>EB Approach</i>	<i>14.2</i>	<i>B</i>	<i>13.1</i>	<i>B</i>
		WB Left	11.0	B	11.4	B
		WB Thru	14.5	B	11.9	B
		WB Right	50.3	D	14.0	B
		<i>WB Approach</i>	<i>38.2</i>	<i>D</i>	<i>13.1</i>	<i>B</i>
		NB Left	30.1	C	20.3	C
		NB Thru	34.9	C	19.7	B
		NB Right	34.9	C	19.7	B
		<i>NB Approach</i>	<i>34.0</i>	<i>C</i>	<i>19.9</i>	<i>B</i>
		SB Left	39.0	D	23.9	C
		SB Thru	28.3	C	19.1	B
		SB Right	28.3	C	19.1	B
		<i>SB Approach</i>	<i>34.6</i>	<i>C</i>	<i>22.2</i>	<i>C</i>
		INTERSECTION	27.9	C	14.5	B
6 80th Street & Pecos Road	Traffic Signal					
		EB Thru	47.0	D	30.1	C
		EB Right	6.1	A	5.1	A
		<i>EB Approach</i>	<i>23.4</i>	<i>C</i>	<i>18.1</i>	<i>B</i>
		WB Left	54.1	D	19.9	B
		WB Thru	30.8	C	16.9	B
		<i>WB Approach</i>	<i>39.4</i>	<i>D</i>	<i>17.8</i>	<i>B</i>
		NB Left	156.9	F	24.0	C
		NB Right	9.5	A	11.5	B
		<i>NB Approach</i>	<i>118.6</i>	<i>F</i>	<i>19.9</i>	<i>B</i>
		INTERSECTION	76.6	E	18.9	B

TRANSPORTATION IMPROVEMENTS

The proposed lane configuration and traffic control for the study intersections is depicted in **Figure 15**.

ROADWAYS

Based on the daily traffic volumes, Pecos Road and Germann Road are approaching capacity as two-lane roadways. The proposed Heritage Gateway charter school is responsible for half-street improvements adjacent to its site.

AUXILIARY LANES

When warranted, turn lanes permit separation of conflicting traffic movements and removes the slower turning traffic from the through traffic, thus improving capacity and reducing rear-end crashes. Determining the need for turn lanes is a key element of traffic impact studies.

Left-turn Lanes

A southbound dedicated left-turn lane on 80th Street is recommended at the school driveway. Left-turn lanes will be required at the major intersections when traffic signals are installed.

Right-Turn Lanes

Per the City of Mesa, dedicated right-turn lanes should be provided on each approach for arterial/arterial intersections and at retail, multi-family, industrial or commercial sites depending on the size of the site as well as institutional sites such as hospitals and schools. Due to school queueing characteristics, dedicated right-turn lanes should be constructed at the school driveways. A westbound right-turn lane is also recommended at the 80th Street/Germann Road intersection.

QUEUE STORAGE ANALYSIS

The necessary storage lengths for the existing turn lanes were also evaluated. Per AASHTO guidelines, the following methodology is provided: To calculate storage length for the turn lanes, the methodology in section 9.7 Auxiliary Lanes of the *AASHTO Green Book* was utilized. It recommends that turn lanes at an unsignalized intersection accommodate the number of vehicles likely to arrive in a 2-minute period. For signalized intersections, the *AASHTO Green Book* recommends a storage length based on the number of vehicles likely to arrive within 1.5 to 2.0 times the signal cycle length.

The 95th percentile queues from the Synchro level-of-service analyses have also been reported for the signalized intersection and were considered when determining the recommended storage lengths. For this analysis, 25 feet was utilized to accommodate vehicle length and clearance between vehicles. The storage lengths are rounded to the nearest 25 feet. The queue storage analysis is summarized in **Table 11** for the 2030 background with site full build-out scenario.

Table 11: Turn-lane Queue Length Calculations – 2030 with School Full Build-out

Intersection	Traffic Control	Movement	AM/PM Volume (vph)	2030 BACKGROUND PLUS FULL BUILD-OUT Queue Storage (feet)			
				Existing	AASHTO	AM/PM Synchro 95th %	Recommended Minimum
1 Sossaman Road & Germann Road	Minor Street Stop Control (WB)	SB Left	116 /207	-	175		Intersection should be considered for a future traffic signal as area is developed and roadways widened. Existing traffic volumes may meet warrants for a traffic signal. Intersection is complicated by proximity of canal and railroad.
		WB Left	128 /117	-	125		
		NB Right	437 /415	70	375		
		WB Right	170 /108	-	150		
2 80th Street & Germann Road	Future Traffic Signal	NB Left	45 /36	-	50	62/40	100
		SB Left	34 /82	-	100	43/69	100
		EB Left	255 /132	-	250	74/37	250
		WB Left	12 /18	-	25	6/10	100
		WB Right	447 /245	-	425	96/0	250 is on civil plans and is maximum due to physical constraints
3 Existing West Driveway & Germann Road	Entry Only	WB Left	35 /54	TWLTL	50	Determined by School Queue	Existing two-way left-turn lane
		EB Right	83 /83	225	75	Determined by School Queue	225 (Existing)
5 Hawes Road & Germann Road	Minor Street Stop Control (NB)	WB Left	1 /0	-	25	0/0	Currently not provided
		EB Right	16 /12	160	25	25/25	160 (Existing)
6 80th Street & Pecos Road	Future Traffic Signal	NB Dual Left	815 /468	-	775	206/109	250 (Mesa standard) and then center two-way left-turn will store additional vehicles once constructed.
		WB Left	170 /91	-	175	101/41	250 (Mesa standard)
		NB Right	286 /227	-	275	0/0	250 (Mesa standard)
		EB Right	284 /246	110	275	13/0	250 (Mesa standard)
7 80th Street & Driveway A	Minor Street Stop Control (WB)	SB Left	375 /197	-	325	250	250 is proposed on civil plans
		NB Right	375 /197	-	325	0	200 is proposed on civil plans and is the maximum due to physical constraints
9 Sossaman Road & Pecos Road	Traffic Signal	NB Left	480 /342	100	550	393/380	NB dual lefts should be considered in the future due to existing traffic volumes. Site traffic does not add to this movement.
		SB Left	71 /132	100	175	52/88	250 (Mesa standard)
		EB Left	43 /37	100	50	43/38	250 (Mesa standard)
		WB Left	222 /222	100	275	285/286	Depends on full improvements at intersection.
		EB Right	257 /386	-	450	113/132	250 (Mesa standard)
		WB Right	65 /69	-	100	0/0	250 (Mesa standard)

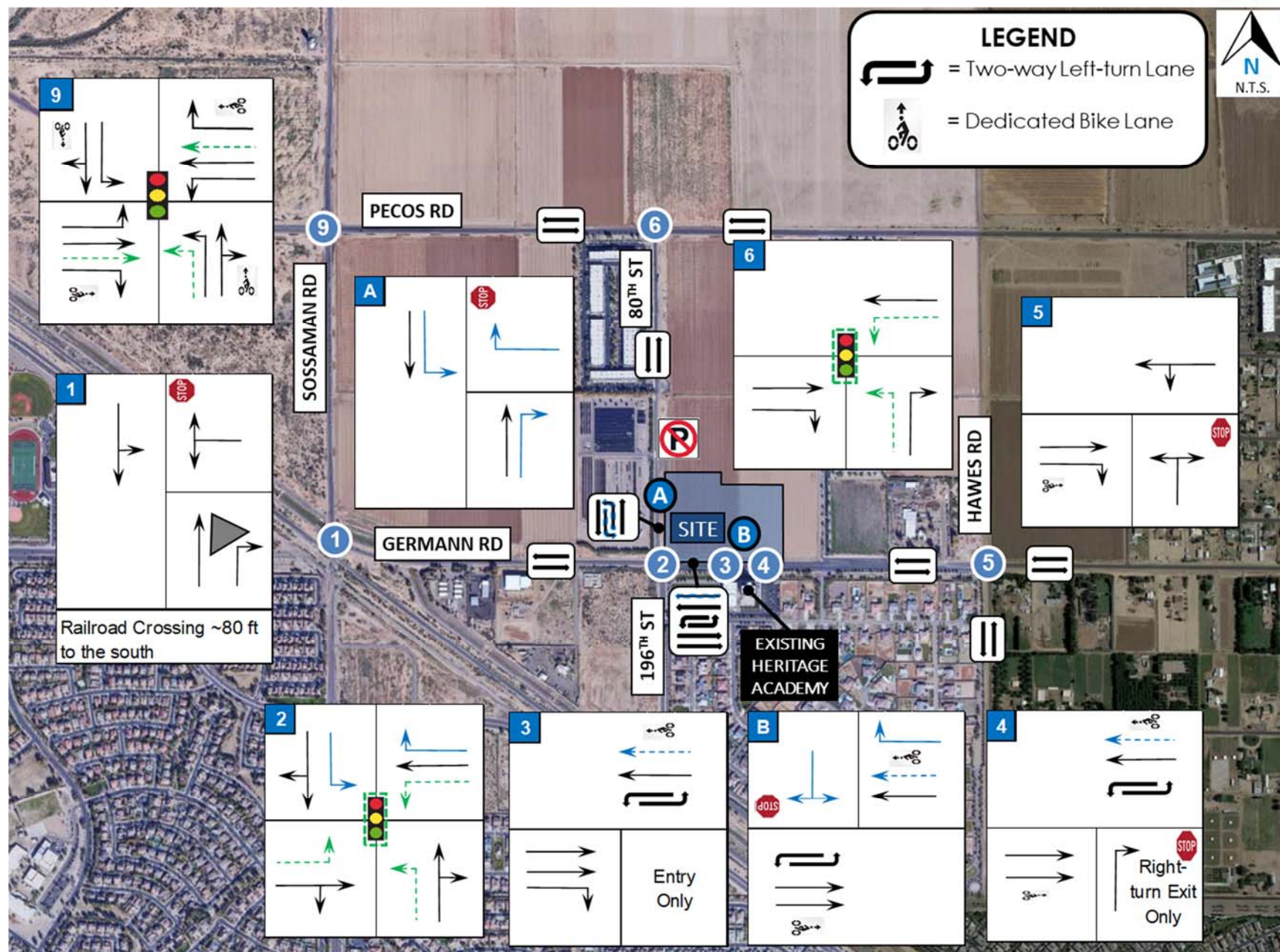


Figure 15: 2030 Lane Configurations and Traffic Control

PRINCIPAL FINDINGS AND RECOMMENDATIONS

TRIP GENERATION

Opening year of the new school (860 students) is anticipated to generate 1,591 weekday daily trips (entering/exiting) with 980 trips (entering/exiting) during the AM peak hour and 593 trips (entering/exiting) during PM Peak Hour.

Full build-out of the school (1,260 students) is anticipated to generate 2,294 weekday daily trips (entering/exiting) with 1,414 trips (entering/exiting) during the AM peak hour and 856 trips (entering/exiting) during PM Peak Hour.

FUTURE LEVEL-OF-SERVICE

The **80th Street/Germann Road** and **80th Street/Pecos Road** intersections experience significant delay with existing conditions. With the proposed Heritage Gateway school, the delays will increase. The minor street traffic volumes meet the requirements for a traffic signal with existing counts, and the major street traffic volumes are expected to be satisfied in the future as the area is developed. Utilizing a 3% annual growth rate, the major street volumes are expected to be met at the 80th Street/Germann Road intersection in horizon year 2022. By horizon year 2030, the major street volumes are expected to be met at the 80th Street/Pecos Road intersection. There is a high volume of existing traffic (404 vph in the AM peak of intersection and 316 vph during AM peak of school) making a northbound left-turn at the 80th Street/Pecos Road intersection.

The **Sossaman Road/Germann Road** intersection also experiences delay with existing conditions. The horizon year for improving this intersection is unknown, and therefore was analyzed as unsignalized in this study. Hourly traffic volumes were not collected at this intersection for this analysis. However, it is expected that traffic volumes will be met for the installation of a traffic signal in the near future if not already. This intersection is complicated due to the proximity of a canal and the railroad.

The exiting approach of the school driveway on 80th Street will operate at level-of-service 'F' during the AM peak hour of horizon year 2030. This is due to the high number of vehicles heading north on 80th Street during the AM peak hour. A future traffic signal at the intersection of 80th Street and Germann Road has the potential to provide gaps on 80th Street.

The exiting approach of the existing east school driveway on Germann Road will also operate at level-of-service 'F' during the AM peak hour of horizon year 2030. This is due to increased background traffic on Germann Road during the AM peak hour. This intersection was analyzed utilizing the existing school traffic volumes. With construction of the new school, the existing school will experience a lower enrollment from 786 students to 575 high school students, thus improving its operation.

The **Sossaman Road/Pecos Road** intersection will have movements with a level of service 'F' in horizon year 2030 during the PM peak hour with background traffic volumes. The Heritage Academy will increase delay. Additional improvements are recommended in year 2030, specifically additional through lanes on Pecos Road and a northbound dual left-turn on Sossaman Road (due to existing traffic volumes).

RECOMMENDATIONS WITH PROPOSED DEVELOPMENT

80th Street & Germann Road - Utilizing a 3% annual growth rate, the major street volumes are expected to be met for installing a traffic signal in year 2022. Therefore, a future traffic signal should be planned and accommodated. Per the City of Mesa, dedicated right-turn lanes should be provided on each approach for arterial/arterial intersections. A westbound right-turn lane is recommended at the 80th Street/Germann Road intersection adjacent to the site.

80th Street & Pecos Road - Utilizing a 3% annual growth rate, the major street volumes are expected to be met for installing a traffic signal by horizon year 2030. Therefore, a future traffic signal should be planned and accommodated.

Proposed School Driveways - Due to school queuing characteristics, a southbound left-turn lane (250 feet of storage) and a northbound right-turn lane (200 feet of storage) on 80th Street at the school driveway are included in the civil plans for the development. A westbound right-turn deceleration lane is also being constructed on Germann Road at the school driveway.

School Circulation - Vehicles will enter the drop-off and pick-up line at Driveway A on 80th Street. Vehicles may enter by making a southbound left-turn or northbound right-turn into the site from 80th Street. Exiting vehicles are prohibited to a right-turn only. Driveway B on Germann Road will only be utilized during off peak times. Per the City of Mesa and Town of Queen Creek, a value of 0.15 shall be required for magnet, charter, and private schools. A distance of 25 feet was assumed for each vehicle to calculate the necessary queue length. The preschool and Lexington Academy student enrollment is not included in the queue calculation, since their drop-off and pick-up times are staggered from the K-8 school. The queuing and circulation for the ultimate conditions based on 960 students is 3,600 feet. When utilizing dual lanes, the site plan provides for 4,094 feet of queuing on-site, which exceeds the calculated required queue of 3,600 feet. The provided on-site queueing results in a rate of 4.26 feet per student or 0.17 vehicles per student.

Dual lanes are effective by stopping vehicles together in both lanes within a designated area of the drop-off/pick-up locations. After all students are safely unloaded/loaded, then the vehicles may proceed and the next group of vehicles enter the designated area. Students should not be dropped off or picked up until all vehicles are pulled forward and stopped and signaled by a staff member.

Staggered Times - As a contingency plan, it is recommended to consider staggered pick-up/drop-off times for K-5 and 6-8 grades. There should also be a 30-minute gap between the start and end times between the new school and existing school to avoid a conflict of traffic.

Pedestrian and Bicycle Facilities - Improved pedestrian and bicycle facilities encourage students to walk and bike to and from school where safety is not a barrier, thus increasing student physical activity and decreasing vehicular traffic. Designated crosswalks should be provided from the school parking lot to the school entry for safe access from the parking lots. The new campus has its own facilities for 6-8 students to use during the day. The high school facilities will mostly be used by 6-8 sport teams outside of school time, and they can be dropped off. On the rare occasion there is crossover during the school day, it will be with a designated staff member. If there is a shared teacher, the teacher will be traveling, not the students.

A future traffic signal at the 80th Street/Germann Road intersection would provide a crossing between the two schools and to/from the existing neighborhood. Students should be prohibited from crossing Germann Road and 80th Street until a traffic signal is installed and in operation.

APPENDICES

APPENDIX A: Site Plan



SITE INFORMATION

SITE AREAS:
TOTAL SITE AREA: 436,600 SF (10 ACRES)
PARKING CALCULATIONS:
TOTAL PARKING STALLS PROVIDED ON SITE:
234 STANDARD + 8 HANDICAP
PERCENTAGE HANDICAP PARKING STALLS: 3.2% (2%
MIN REQUIRED PER 2018 IBC TABLE 1106.1)

GENERAL NOTES

- A. ALL PATHS OF TRAVEL ON SITE SHALL BE LEVEL (CHANGES IN LEVEL 1/2" MAX) AND SHALL BE 48" WIDE MIN. COMPLY WITH THE PROVISIONS OF THE ICC A117.1.
- B. FIRE LANE NO PARKING SHALL BE POSTED AT 75' INTERVALS ALONG FIRE LANES WITH RED CURBS. NO PARKING - FIRE LANE SHALL BE STENCILED AT RED CURB, CENTERED BETWEEN SIGNAGE. VERIFY FIRE SIGNAGE LOCATION AND CURB PAINTING W/ AHJ PRIOR TO INSTALLATION.
- C. BUILDING ADDRESS NUMBERS SHALL BE PLAINLY LEGIBLE AND VISIBLE FROM THE STREET FRONTING THE PROPERTY. LETTERS 0'-100' FROM CENTER OF PUBLIC WAY SHALL BE 12" TALL AND 3" WIDE MINIMUM. LETTERS GREATER THAN 100' SHALL BE 15" TALL AND 4" WIDE MINIMUM. LETTERS SHALL CONTRAST BACKGROUND. VERIFY BUILDING NUMBER SIZE, STYLE, AND FINAL LOCATION WITH AHJ PRIOR TO INSTALLATION.
- D. PROVIDE A MINIMUM 15' VERTICAL CLEAR AT ALL FIRE LANES. (75,000 LBS MIN. CAPACITY AT DGL)
- E. SITE VISIBILITY TRIANGLES AT ALL SITE ENTRANCES/EXITS PER AHJ.
- F. SITE STRIPING COLOR AND WIDTH PER AHJ STANDARDS.
- G. DROP-OFF/PICK-UP LANE SHALL NOT INTERFERE WITH FIRE LANE REQUIRED CLEARANCES.
- I. ALL EXTERNAL LIGHTING SHALL BE LOCATED AND SHIELDED TO PREVENT RAYS FROM BEING DIRECTED OFF OF THE PROPERTY UPON WHICH IT IS LOCATED.
- J. SIGNS REQUIRE A SEPARATE PERMIT.
- K. THERE SHALL BE NO OBSTRUCTION OF SITE SIGNAGE BY LANDSCAPE PLANT MATERIAL. LANDSCAPING OBSTRUCTING SIGNAGE SHALL BE RELOCATED/CORRECTED BEFORE THE FIELD INSPECTION WILL ACCEPT/PASS THE PROPOSED SIGNOR ISSUE THE CERTIFICATE OF OCCUPANCY FOR THE PROJECT.
- L. ALL TRANSFORMER BOXES, METER PANELS, ELECTRICAL EQUIPMENT, BACKFLOW DEVICES, OR OTHER UTILITY EQUIPMENT NOT OTHERWISE ABLE TO BE SCREENED BY WALLS OR LANDSCAPING SHALL BE PAINTED TO MATCH THE ADJACENT BUILDING COLOR.
- M. KNOX BOXES PROVIDED AT ALL PRIMARY BUILDING ENTRANCES, FIRE RISER ROOMS, AND LOCKED GATES. COORDINATE FINAL LOCATIONS WITH AHJ.

KEYNOTES

- 1. SOFTBALL FIELD.
- 2. BICYCLE RACK ANCHOR. SEE DETAIL 24/A110.
- 3. BICYCLE RACK (BY OWNER).
- 4. FLAGPOLE. SEE DETAIL 28/A110.
- 5. EXTERIOR ADA COMPLIANT DRINKING FOUNTAINS.
- 6. ORNAMENTAL STEEL FENCE. SEE DETAIL 24/A110.
- 7. LOCKABLE ORNAMENTAL STEEL GATES. HEIGHT TO MATCH ADJACENT FENCE. PROVIDE PANIC HARDWARE PER 2018 IBC 1001.10.10.10.22.
- 8. NEW FIRE HYDRANT.
- 9. STEEL PIPE BOLLARD. SEE DETAIL 11/A111.
- 10. STEEL PIPE BOLLARD. SEE DETAIL 13/A110.
- 11. CONCRETE SIDEWALK. EXPANSION JOINTS SHALL BE PROVIDED EVERY 20' MAX. SEE DETAIL 21/A110. CONTROL JOINTS SHALL BE PROVIDED EVERY 6' MAX. SEE DETAIL 22/A110.
- 12. STABILIZED DECOMPOSED GRANITE.
- 13. PICK-UP/DROP-OFF STRIPING.
- 14. STREET CROSSWALK STRIPING.
- 15. PARKING STRIPING.
- 16. PAINTED DIRECTIONAL ARROWS. COORDINATE FINAL LOCATIONS AND DIRECTIONS WITH OWNER AND AHJ.
- 17. CONCRETE CURB. SEE DETAIL 14/A110.
- 18. CONCRETE ROLL-CURB. SEE DETAIL 19/A110.
- 19. CURB RAMP / FLARED SIDES (1:10 MAX. PITCH) AND TACTILE WARNING SURFACE. SEE DETAIL 12/A110.
- 20. PERVIOUS SOIL AREA.
- 21. PAVING.
- 22. CONCRETE MONUMENT BASE. HEIGHT AND SIZE TO BE DETERMINED BASED ON SELECTED MONUMENT.
- 23. HEAVY DUTY CONCRETE PAD.
- 24. POLE MOUNTED SITE LIGHTING AND BASE. SEE ELECTRICAL DRAWINGS FOR BASE DETAIL.
- 25. BUILDING CANOPY/AVENUE OVERHANG.
- 26. BUILDING MOUNTED FIRE DEPARTMENT CONNECTION. COORDINATE FINAL LOCATION WITH AHJ.
- 27. KNOX-BOX. VERIFY FINAL LOCATION WITH FIRE MARSHAL.
- 28. AERIAL APPARATUS FIRE ACCESS LANE. MAINTAIN 26' WIDE CLEARANCE.
- 29. FIRE LANE. MAINTAIN 24' WIDE CLEARANCE.
- 30. PICNIC TABLE (BY OWNER).
- 31. DO NOT ENTER - WRONG WAY SIGN. SEE DETAIL 27/A110.
- 32. 'STUDENT PICK-UP/DROP OFF SIGN. DETAIL 27/A110.
- 33. ELECTRICAL EQUIPMENT.
- 34. BOLLARD LIGHT. SEE ELECTRICAL DRAWINGS.
- 35. ARTIFICIAL TURF. SEE LANDSCAPING DRAWINGS.
- 36. WOOD CHIPS. SEE LANDSCAPING DRAWINGS.

LEGEND

Legend symbols and keyplan:

- X XXXX: DETAIL TAG
- KEYNOTE TAG
- ACCESSIBLE ROUTE SECTION 1104 (PER 2018 IBC)
- PROPERTY LINE
- PRE-K
- GYM
- AUT
- K-8
- KEYPLAN

HDA ARCHITECTS, LLC.
459 N. GILBERT ROAD, SUITE C-200, GILBERT, AZ 85234
TEL: (480) 539-8800 FAX: (480) 539-8608

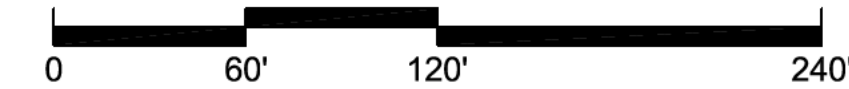
KINDERGARTEN THRU 8 AND GYMNASIUM BUILDINGS FOR:
HERITAGE GATEWAY EDUPLEX
8048 E. GERMAN RD. MESA, ARIZONA 85212
HERITAGE ACADEMY

PERMIT SET

Job No. 2117
Drawn VACE
Checked ZTK
Date 08/12/2021
Revised
ADDENDUM #4
08-17-2021
CITY COMMENTS #5
05-27-2021

Sheet No. **A100a**

SITE PLAN



SCALE: 1" = 30'

APPENDIX B: Existing Traffic Counts

Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: Sossaman Rd

DATE: 08/03/21

LOCATION: Mesa

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT# 21-1464-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 1	SL 0	ST 1	SR 0	EL 0	ET 0	ER 0	WL 0	WT 1	WR 0	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	202	43	13	59	0	0	0	0	30	0	32	379
7:15 AM	0	207	98	34	76	0	0	0	0	10	0	23	448
7:30 AM	0	203	70	30	76	0	0	0	0	14	0	31	424
7:45 AM	0	201	35	21	67	0	0	0	0	28	0	44	396
8:00 AM	0	141	31	20	67	0	0	0	0	32	0	26	317
8:15 AM	0	99	25	17	57	0	0	0	0	23	0	28	249
8:30 AM	0	96	31	9	49	0	0	0	0	19	0	27	231
8:45 AM	0	93	30	18	47	0	0	0	0	27	0	19	234
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	1242	363	162	498	0	0	0	0	183	0	230	2678
Approach %	0.00	77.38	22.62	24.55	75.45	0.00	####	####	####	44.31	0.00	55.69	
App/Depart	1605	/	1472	660	/	681	0	/	525	413	/	0	

AM Peak Hr Begins at: 700 AM

PEAK

Volumes	0	813	246	98	278	0	0	0	0	82	0	130	1647
Approach %	0.00	76.77	23.23	26.06	73.94	0.00	####	####	####	38.68	0.00	61.32	

PEAK HR.

FACTOR:	0.868	0.855	0.000	0.736	0.919
---------	-------	-------	-------	-------	-------

CONTROL: 1-Way Stop (WB)

COMMENT 1:

GPS: 33.278371, -111.669413

Intersection Turning Movement



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: Sossaman Rd

0

DATE: 08/03/21

LOCATION: Mesa

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT# 21-1464-001

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	1	0	1	0	0	0	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM	0	63	38	41	158	0	0	0	0	27	0	20	347
2:45 PM	0	73	38	33	137	0	0	0	0	24	0	20	325
3:00 PM	0	77	51	38	119	0	0	0	0	13	0	19	317
3:15 PM	0	93	60	42	105	0	0	0	0	17	0	22	339
3:30 PM	0	89	62	46	93	0	0	0	0	29	0	19	338
3:45 PM	0	81	53	31	122	0	0	0	0	30	0	22	339
4:00 PM	0	77	45	57	164	0	0	0	0	26	0	19	388
4:15 PM	0	90	27	42	146	0	0	0	0	19	0	16	340
4:30 PM	0	66	45	58	150	0	0	0	0	17	0	17	353
4:45 PM	0	74	53	54	150	0	0	0	0	24	0	13	368
5:00 PM	0	88	30	39	153	0	0	0	0	29	0	10	349
5:15 PM	0	78	42	45	162	0	0	0	0	12	0	19	358
5:30 PM	0	86	36	40	147	0	0	0	0	11	0	16	336
5:45 PM	0	83	43	26	132	0	0	0	0	17	0	11	312
6:00 PM	0	50	33	36	136	0	0	0	0	21	0	12	288
6:15 PM	0	50	39	42	74	0	0	0	0	19	0	5	229
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	1218	695	670	2148	0	0	0	0	335	0	260	5326
Approach %	0.00	63.67	36.33	23.78	76.22	0.00	####	####	####	56.30	0.00	43.70	
App/Depart	1913	/	1478	2818	/	2483	0	/	1365	595	/	0	

PM Peak Hr Begins at: 400 PM

PEAK

Volumes	0	307	170	211	610	0	0	0	0	86	0	65	1449
Approach %	0.00	64.36	35.64	25.70	74.30	0.00	####	####	####	56.95	0.00	43.05	

PEAK HR.

FACTOR:	0.939	0.929	0.000	0.839	0.934
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CONTROL: 1-Way Stop (WB)

COMMENT 1: 0

GPS: 33.278371, -111.669413

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	230	PM	630	PM



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Sossaman Rd
E-W STREET: Germann Rd

Date: 08/03/21
Day: TUESDAY

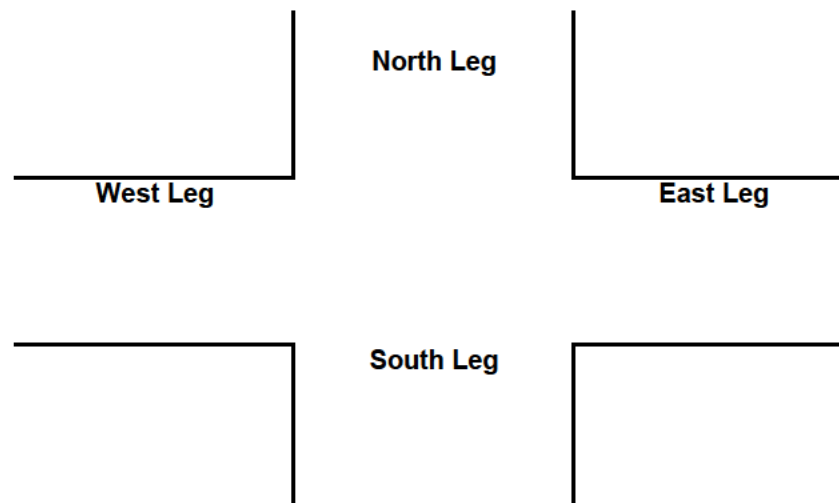
City: Mesa
Project #: 21-1464-001

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	1	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	1	0	0

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0



Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: 80th St

DATE: 08/03/21

LOCATION: Mesa

E-W STREET: Pecos Rd

DAY: TUESDAY

PROJECT# 21-1464-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 0	SR 0	EL 0	ET 1	ER 1	WL 0	WT 1	WR 0	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	70	0	4	0	0	0	0	34	10	7	76	0	201
7:15 AM	92	0	6	0	0	0	0	46	11	2	64	0	221
7:30 AM	141	0	5	0	0	0	0	36	14	4	68	0	268
7:45 AM	101	0	2	0	0	0	0	33	6	6	78	0	226
8:00 AM	44	0	2	0	0	0	0	52	13	3	60	0	174
8:15 AM	30	0	6	0	0	0	0	46	12	2	59	0	155
8:30 AM	30	0	4	0	0	0	0	42	7	1	45	0	129
8:45 AM	21	0	3	0	0	0	0	41	6	10	60	0	141
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	529	0	32	0	0	0	0	330	79	35	510	0	1515
Approach %	94.30	0.00	5.70	####	####	####	0.00	80.68	19.32	6.42	93.58	0.00	
App/Depart	561	/	0	0	/	114	409	/	362	545	/	1039	

AM Peak Hr Begins at: 700 AM

PEAK

Volumes	404	0	17	0	0	0	0	149	41	19	286	0	916
Approach %	95.96	0.00	4.04	####	####	####	0.00	78.42	21.58	6.23	93.77	0.00	

PEAK HR.

FACTOR:	0.721	0.000	0.833	0.908	0.854
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CONTROL: 1-Way Stop (NB)

COMMENT 1:

GPS: 33.285191, -111.660916

Intersection Turning Movement



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: 80th St 0 DATE: 08/03/21 LOCATION: Mesa
E-W STREET: Pecos Rd DAY: TUESDAY PROJECT#: 21-1464-002

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	0	0	0	1	1	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM	24	0	6	0	0	0	0	46	20	0	66	0	162
2:45 PM	32	0	2	0	0	0	0	55	25	1	51	0	166
3:00 PM	24	0	3	0	0	0	0	61	21	1	54	0	164
3:15 PM	22	0	5	0	0	0	0	61	30	3	59	0	180
3:30 PM	30	0	10	0	0	0	0	51	27	4	49	0	171
3:45 PM	69	0	14	0	0	0	0	94	19	1	86	0	283
4:00 PM	62	0	5	0	0	0	0	60	22	2	86	0	237
4:15 PM	32	0	7	0	0	0	0	67	27	4	56	0	193
4:30 PM	30	0	2	0	0	0	0	62	35	2	47	0	178
4:45 PM	24	0	8	0	0	0	0	80	41	3	65	0	221
5:00 PM	20	0	4	0	0	0	0	54	44	4	80	0	206
5:15 PM	19	0	1	0	0	0	0	48	23	0	49	0	140
5:30 PM	13	0	4	0	0	0	0	55	22	1	52	0	147
5:45 PM	13	0	1	0	0	0	0	85	25	3	59	0	186
6:00 PM	10	0	6	0	0	0	0	57	21	5	107	0	206
6:15 PM	9	0	4	0	0	0	0	41	29	4	35	0	122
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	433	0	82	0	0	0	0	977	431	38	1001	0	2962
Approach %	84.08	0.00	15.92	####	####	####	0.00	69.39	30.61	3.66	96.34	0.00	
App/Depart	515	/	0	0	/	469	1408	/	1059	1039	/	1434	

PM Peak Hr Begins at: 345 PM

PEAK

Volumes	193	0	28	0	0	0	0	283	103	9	275	0	891
Approach %	87.33	0.00	12.67	####	####	####	0.00	73.32	26.68	3.17	96.83	0.00	

PEAK HR.

FACTOR:	0.666	0.000	0.854	0.807	0.787
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CONTROL:

COMMENT 1: 1-Way Stop (NB)
GPS: 33.285191, -111.660916

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	230	PM	630	PM



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: 80th St
E-W STREET: Pecos Rd

Date: 08/03/21
Day: TUESDAY

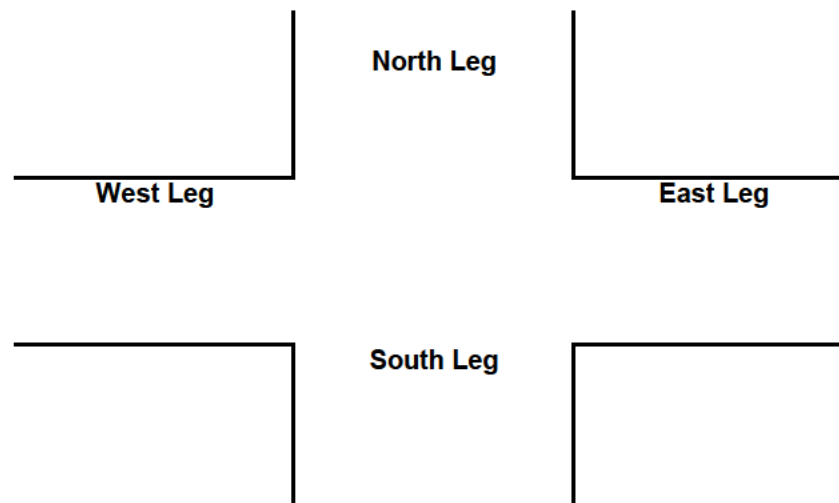
City: Mesa
Project #: 21-1464-002

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0



Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: 80th St / 196th St

DATE: 08/03/21

LOCATION: Queen Creek

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT#: 21-1464-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	21	45	6	9	3	0	0	33	9	0	53	37	216
7:15 AM	9	33	24	6	3	1	9	83	7	1	57	70	303
7:30 AM	2	25	47	11	6	0	14	127	20	4	42	131	429
7:45 AM	15	33	7	4	5	0	4	36	12	1	51	57	225
8:00 AM	10	19	0	6	9	1	0	38	15	2	36	31	167
8:15 AM	7	22	2	5	3	2	5	30	12	2	39	7	136
8:30 AM	16	20	2	3	4	1	0	23	16	1	39	23	148
8:45 AM	5	8	1	2	8	2	3	38	11	1	38	14	131
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	85	205	89	46	41	7	35	408	102	12	355	370	1755
Approach %	22.43	54.09	23.48	48.94	43.62	7.45	6.42	74.86	18.72	1.63	48.17	50.20	
App/Depart	379	/	610	94	/	155	545	/	543	737	/	447	

AM Peak Hr Begins at: 700 AM

PEAK

Volumes	47	136	84	30	17	1	27	279	48	6	203	295	1173
Approach %	17.60	50.94	31.46	62.50	35.42	2.08	7.63	78.81	13.56	1.19	40.28	58.53	

PEAK HR.

FACTOR:	0.902	0.706	0.550	0.712	0.684
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CONTROL: 2-Way Stop (NB & SB)

COMMENT 1:

GPS: 33.277924, -111.660778

Intersection Turning Movement



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: 80th St / 196th St
0

DATE: 08/03/21

LOCATION: Queen Creek

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT# 21-1464-003

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0	1	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM	9	12	3	16	12	1	1	65	9	3	37	15	183
2:45 PM	11	12	4	15	13	0	1	65	17	5	34	21	198
3:00 PM	5	11	1	12	11	1	0	49	18	2	27	11	148
3:15 PM	4	9	4	17	14	1	1	85	24	2	30	20	211
3:30 PM	8	22	1	19	14	0	4	75	28	3	40	22	236
3:45 PM	10	18	13	14	6	3	6	76	19	7	42	73	287
4:00 PM	8	16	5	16	12	2	3	78	24	5	34	41	244
4:15 PM	5	13	1	13	19	4	0	52	18	0	32	21	178
4:30 PM	5	15	3	25	17	1	3	75	24	1	26	15	210
4:45 PM	3	16	4	26	21	2	3	71	26	1	30	14	217
5:00 PM	5	7	4	32	23	1	2	65	25	1	30	12	207
5:15 PM	8	14	0	11	19	1	5	65	11	0	26	9	169
5:30 PM	4	9	1	16	15	1	2	62	17	1	22	8	158
5:45 PM	4	11	5	12	19	2	3	50	22	2	20	10	160
6:00 PM	3	9	5	18	15	5	1	43	14	1	21	3	138
6:15 PM	7	6	0	13	23	2	1	58	20	0	21	5	156
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	99	200	54	275	253	27	36	1034	316	34	472	300	3100
Approach %	28.05	56.66	15.30	49.55	45.59	4.86	2.60	74.60	22.80	4.22	58.56	37.22	
App/Depart	353	/	536	555	/	603	1386	/	1363	806	/	598	

PM Peak Hr Begins at: 315 PM

PEAK

Volumes	30	65	23	66	46	6	14	314	95	17	146	156	978
Approach %	25.42	55.08	19.49	55.93	38.98	5.08	3.31	74.23	22.46	5.33	45.77	48.90	

PEAK HR.

FACTOR:	0.720	0.894	0.961	0.654	0.852
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CONTROL: 2-Way Stop (NB & SB)

COMMENT 1: 0

GPS: 33.277924, -111.660778

HOURS:

	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	230	PM	630	PM



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: 80th St / 196th St
E-W STREET: Germann Rd

Date: 08/03/21
Day: TUESDAY

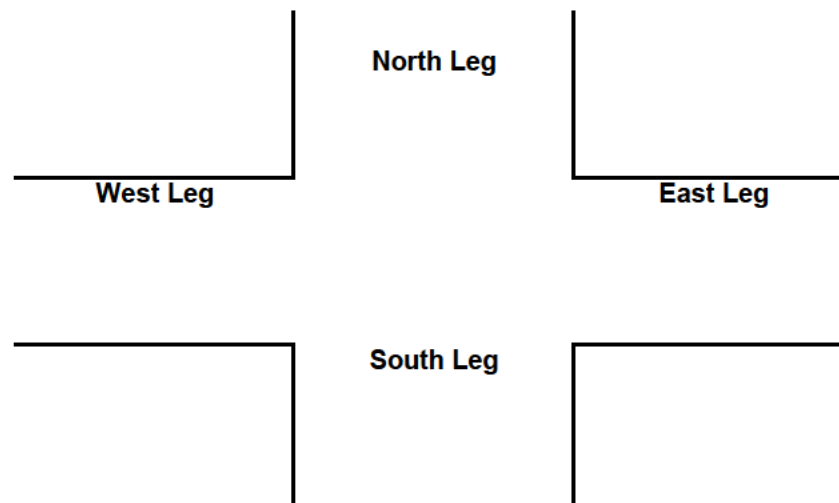
City: Queen Creek
Project #: 21-1464-003

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	1	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	1	0	0

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0



Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 21-1464-004

TMC SUMMARY OF Heritage Gateway West Dwy & Germann Rd

Heritage Gateway

Germann Rd

APPROACH LANES			
TOTAL	0	0	0
PM	0	0	0
MD			
AM	0	0	0

N

Germann Rd

APPROACH LANES

TOTAL	AM	MD	PM
0	0		0
533	213		320
263	180		83

CONTROL

No Controls

AM	MD	PM	TOTAL
0		0	0
504		319	823
116		54	170

APPROACH LANES

Heritage Gateway We

TOTAL	0	0	0
PM			
MD			
AM	0	0	0

APPROACH LANES

LOCATION #: 21-1464-004

TURNING MOVEMENT COUNT

Heritage Gateway West Dwy & Germann
(Intersection Name)

TUESDAY

Day

08/03/21

Date

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	230PM	-	630PM

AM PEAK HOUR

700 AM

NOON PEAK HOUR

PM PEAK HOUR

315 PM

Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: Heritage Gateway West Dwy

DATE: 08/03/21

LOCATION: Queen Creek

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT# 21-1464-004

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	2	1	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	0	0	0	0	20	28	24	90	0	162
7:15 AM	0	0	0	0	0	0	0	41	72	58	128	0	299
7:30 AM	0	0	0	0	0	0	0	110	75	33	177	0	395
7:45 AM	0	0	0	0	0	0	0	42	5	1	109	0	157
8:00 AM	0	0	0	0	0	0	0	43	1	0	69	0	113
8:15 AM	0	0	0	0	0	0	0	35	2	1	48	0	86
8:30 AM	0	0	0	0	0	0	0	28	0	2	63	0	93
8:45 AM	0	0	0	0	0	0	0	39	2	1	53	0	95
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	0	0	0	0	358	185	120	737	0	1400
Approach %	####	####	####	####	####	####	0.00	65.93	34.07	14.00	86.00	0.00	
App/Depart	0	/	0	0	/	305	543	/	358	857	/	737	

AM Peak Hr Begins at: 700 AM

PEAK

Volumes	0	0	0	0	0	0	0	213	180	116	504	0	1013
Approach %	####	####	####	####	####	####	0.00	54.20	45.80	18.71	81.29	0.00	

PEAK HR.

FACTOR:	0.000	0.000	0.531	0.738	0.641
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CONTROL: No Controls

COMMENT 1:

GPS: 33.277900, -111.659215

Intersection Turning Movement



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: **Heritage Gateway West Dwy**
0

DATE: **08/03/21**

LOCATION: **Queen Creek**

E-W STREET: **Germann Rd**

DAY: **TUESDAY**

PROJECT# **21-1464-004**

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	2	1	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM	0	0	0	0	0	0	0	83	1	1	55	0	140
2:45 PM	0	0	0	0	0	0	0	81	3	4	60	0	148
3:00 PM	0	0	0	0	0	0	0	55	7	10	40	0	112
3:15 PM	0	0	0	0	0	0	0	86	20	11	52	0	169
3:30 PM	0	0	0	0	0	0	0	73	22	14	65	0	174
3:45 PM	0	0	0	0	0	0	0	71	32	21	122	0	246
4:00 PM	0	0	0	0	0	0	0	90	9	8	80	0	187
4:15 PM	0	0	0	0	0	0	0	62	4	6	53	0	125
4:30 PM	0	0	0	0	0	0	0	97	6	6	42	0	151
4:45 PM	0	0	0	0	0	0	0	94	7	1	45	0	147
5:00 PM	0	0	0	0	0	0	0	99	2	3	43	0	147
5:15 PM	0	0	0	0	0	0	0	76	0	0	35	0	111
5:30 PM	0	0	0	0	0	0	0	77	2	4	31	0	114
5:45 PM	0	0	0	0	0	0	0	56	11	8	32	0	107
6:00 PM	0	0	0	0	0	0	0	62	4	3	25	0	94
6:15 PM	0	0	0	0	0	0	0	70	1	0	26	0	97
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	0	0	0	0	0	0	0	1232	131	100	806	0	2269
Approach %	####	####	####	####	####	####	0.00	90.39	9.61	11.04	88.96	0.00	
App/Depart	0	/	0	0	/	231	1363	/	1232	906	/	806	

PM Peak Hr Begins at: 315 PM

PEAK

Volumes	0	0	0	0	0	0	0	320	83	54	319	0	776
Approach %	####	####	####	####	####	####	0.00	79.40	20.60	14.48	85.52	0.00	

PEAK HR.

FACTOR:	0.000	0.000	0.950	0.652	0.789
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CONTROL: **No Controls**

COMMENT 1: **0**

GPS: **33.277900, -111.659215**



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Heritage Gateway West Dwy
E-W STREET: Germann Rd

Date: 08/03/21
Day: TUESDAY

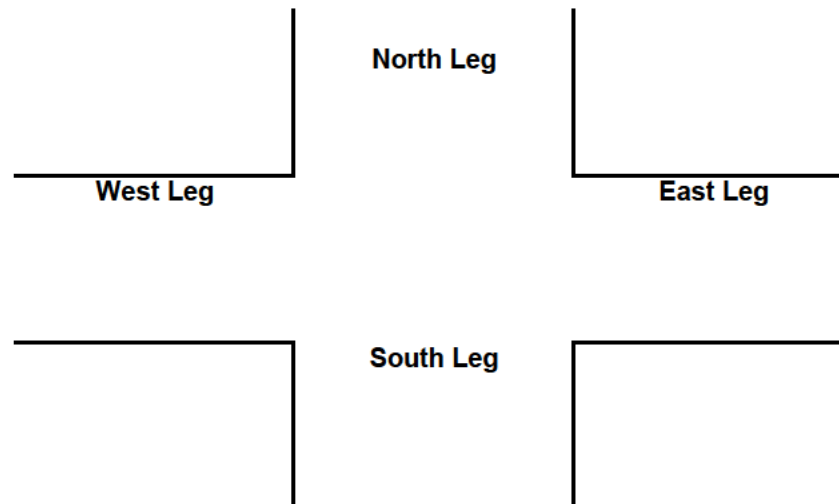
City: Queen Creek
Project #: 21-1464-004

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	1	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	1	0	0
TOTAL	0	2	0	0

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0



Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 21-1464-005

TMC SUMMARY OF Heritage Gateway East Dwy & Germann Rd

Heritage Gateway 	Germann Rd 	Heritage Gateway Eas 	Germann Rd 																																						
<table border="1" style="margin: auto;"> <tr><th colspan="4">APPROACH LANES</th></tr> <tr><td>AM</td><td>MD</td><td>PM</td><td>TOTAL</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	APPROACH LANES				AM	MD	PM	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	<table border="1" style="margin: auto;"> <tr><th colspan="4">APPROACH LANES</th></tr> <tr><td>AM</td><td>MD</td><td>PM</td><td>TOTAL</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>570</td><td>311</td><td>0</td><td>881</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	APPROACH LANES				AM	MD	PM	TOTAL	0	0	0	0	570	311	0	881	0	0	0	0
APPROACH LANES																																									
AM	MD	PM	TOTAL																																						
0	0	0	0																																						
0	0	0	0																																						
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0	0	0	0																																						
570	311	0	881																																						
0	0	0	0																																						
<table border="1" style="margin: auto;"> <tr><th>TOTAL</th><th>AM</th><th>MD</th><th>PM</th></tr> <tr><td>0</td><td>0</td><td></td><td>0</td></tr> <tr><td>533</td><td>213</td><td></td><td>320</td></tr> <tr><td>0</td><td>0</td><td></td><td>0</td></tr> </table>	TOTAL	AM	MD	PM	0	0		0	533	213		320	0	0		0	CONTROL 1-Way Stop NB	<table border="1" style="margin: auto;"> <tr><th>TOTAL</th><th>AM</th><th>MD</th><th>PM</th></tr> <tr><td>0</td><td>0</td><td></td><td>0</td></tr> <tr><td>570</td><td>311</td><td>0</td><td>881</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	TOTAL	AM	MD	PM	0	0		0	570	311	0	881	0	0	0	0							
TOTAL	AM	MD	PM																																						
0	0		0																																						
533	213		320																																						
0	0		0																																						
TOTAL	AM	MD	PM																																						
0	0		0																																						
570	311	0	881																																						
0	0	0	0																																						
<table border="1" style="margin: auto;"> <tr><th>TOTAL</th><th>AM</th><th>MD</th><th>PM</th></tr> <tr><td>112</td><td>50</td><td>0</td><td>62</td></tr> <tr><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>296</td><td>144</td><td></td><td>152</td></tr> </table>	TOTAL	AM	MD	PM	112	50	0	62	0	0	0	0	296	144		152	<table border="1" style="margin: auto;"> <tr><th colspan="4">APPROACH LANES</th></tr> <tr><td>AM</td><td>MD</td><td>PM</td><td>TOTAL</td></tr> <tr><td>50</td><td>0</td><td>62</td><td>112</td></tr> <tr><td>144</td><td>0</td><td>152</td><td>296</td></tr> </table>	APPROACH LANES				AM	MD	PM	TOTAL	50	0	62	112	144	0	152	296								
TOTAL	AM	MD	PM																																						
112	50	0	62																																						
0	0	0	0																																						
296	144		152																																						
APPROACH LANES																																									
AM	MD	PM	TOTAL																																						
50	0	62	112																																						
144	0	152	296																																						

LOCATION #: 21-1464-005

TURNING MOVEMENT COUNT

Heritage Gateway East Dwy & Germann
(Intersection Name)

TUESDAY 08/03/21
Day Date

COUNT PERIODS			
AM	700AM	-	900AM
NOON		-	
PM	230PM	-	630PM

AM PEAK HOUR 700 AM

NOON PEAK HOUR

PM PEAK HOUR 315 PM

Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: Heritage Gateway East Dwy

DATE: 08/03/21

LOCATION: Queen Creek

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT# 21-1464-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	1	0	0	0	0	2	0	0	1	0	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	0	2	0	0	0	0	20	0	0	113	0	136
7:15 AM	8	0	27	0	0	0	0	41	0	0	178	0	254
7:30 AM	17	0	81	0	0	0	0	110	0	0	193	0	401
7:45 AM	24	0	34	0	0	0	0	42	0	0	86	0	186
8:00 AM	2	0	3	0	0	0	0	43	0	0	67	0	115
8:15 AM	0	0	0	0	0	0	0	35	0	0	49	0	84
8:30 AM	1	0	0	0	0	0	0	28	0	0	64	0	93
8:45 AM	1	0	1	0	0	0	0	39	0	0	53	0	94
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	54	0	148	0	0	0	0	358	0	0	803	0	1363
Approach %	26.73	0.00	73.27	####	####	####	0.00	100.00	0.00	0.00	100.00	0.00	
App/Depart	202	/	0	0	/	0	358	/	506	803	/	857	

AM Peak Hr Begins at: 700 AM

PEAK

Volumes	50	0	144	0	0	0	0	213	0	0	570	0	977
Approach %	25.77	0.00	74.23	####	####	####	0.00	100.00	0.00	0.00	100.00	0.00	

PEAK HR.

FACTOR:	0.495	0.000	0.484	0.738	0.609
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CONTROL: 1-Way Stop (NB)

COMMENT 1:

GPS: 33.277885, -111.658027

Intersection Turning Movement



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: Heritage Gateway East Dwy
0

DATE: 08/03/21

LOCATION: Queen Creek

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT# 21-1464-005

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	1	0	0	0	0	2	0	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM	0	0	1	0	0	0	0	83	0	0	56	0	140
2:45 PM	1	0	1	0	0	0	0	81	0	0	63	0	146
3:00 PM	1	0	1	0	0	0	0	55	0	0	49	0	106
3:15 PM	1	0	2	0	0	0	0	86	0	0	62	0	151
3:30 PM	1	0	2	0	0	0	0	73	0	0	78	0	154
3:45 PM	26	0	69	0	0	0	0	71	0	0	117	0	283
4:00 PM	34	0	79	0	0	0	0	90	0	0	54	0	257
4:15 PM	9	0	22	0	0	0	0	62	0	0	50	0	143
4:30 PM	7	0	15	0	0	0	0	97	0	0	41	0	160
4:45 PM	5	0	10	0	0	0	0	94	0	0	41	0	150
5:00 PM	6	0	10	0	0	0	0	99	0	0	40	0	155
5:15 PM	1	0	1	0	0	0	0	76	0	0	34	0	112
5:30 PM	1	0	0	0	0	0	0	77	0	0	34	0	112
5:45 PM	0	0	0	0	0	0	0	56	0	0	40	0	96
6:00 PM	1	0	2	0	0	0	0	62	0	0	27	0	92
6:15 PM	0	0	1	0	0	0	0	70	0	0	26	0	97
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	94	0	216	0	0	0	0	1232	0	0	812	0	2354
Approach %	30.32	0.00	69.68	####	####	####	0.00	100.00	0.00	0.00	100.00	0.00	
App/Depart	310	/	0	0	/	0	1232	/	1448	812	/	906	

PM Peak Hr Begins at: 315 PM

PEAK

Volumes	62	0	152	0	0	0	0	320	0	0	311	0	845
Approach %	28.97	0.00	71.03	####	####	####	0.00	100.00	0.00	0.00	100.00	0.00	

PEAK HR.

FACTOR:	0.473	0.000	0.889	0.665	0.746
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CONTROL: 1-Way Stop (NB)

COMMENT 1: 0

GPS: 33.277885, -111.658027



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Heritage Gateway East Dwy
E-W STREET: Germann Rd

Date: 08/03/21
Day: TUESDAY

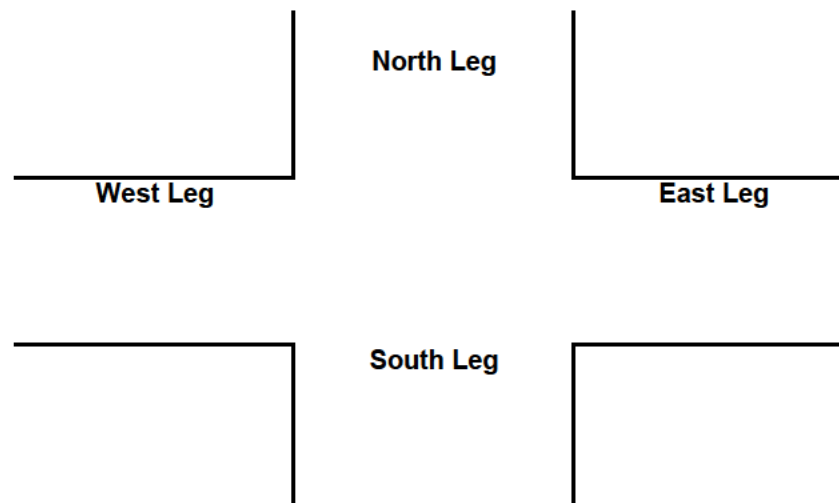
City: Queen Creek
Project #: 21-1464-005

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	1	0	0
7:30 AM	0	8	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	1	0	0
TOTAL	0	10	0	0

PEDESTRIANS				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	1	0	0
2:45 PM	0	4	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	1	0	0
3:45 PM	0	33	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	1	0	0
4:45 PM	0	0	1	25
5:00 PM	0	1	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	41	1	25

BICYCLES				
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	1	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	1	0	0



Intersection Turning Movement

Prepared by:



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: Hawes Rd

DATE: 08/03/21

LOCATION: Queen Creek

E-W STREET: Germann Rd

DAY: TUESDAY

PROJECT# 21-1464-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 0	SR 0	EL 0	ET 1	ER 1	WL 0	WT 1	WR 0	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	7	0	0	0	0	0	0	38	1	0	95	0	141
7:15 AM	14	0	0	0	0	0	0	85	5	0	166	0	270
7:30 AM	12	0	0	0	0	0	0	155	6	0	122	0	295
7:45 AM	6	0	1	0	0	0	0	58	2	0	80	0	147
8:00 AM	1	0	0	0	0	0	0	43	3	1	72	0	120
8:15 AM	3	0	0	0	0	0	0	36	1	0	54	0	94
8:30 AM	2	0	0	0	0	0	0	27	1	0	58	0	88
8:45 AM	2	0	0	0	0	0	0	40	1	0	56	0	99
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	47	0	1	0	0	0	0	482	20	1	703	0	1254
Approach %	97.92	0.00	2.08	####	####	####	0.00	96.02	3.98	0.14	99.86	0.00	
App/Depart	48	/	0	0	/	21	502	/	483	704	/	750	

AM Peak Hr Begins at: 700 AM

PEAK

Volumes	39	0	1	0	0	0	0	336	14	0	463	0	853
Approach %	97.50	0.00	2.50	####	####	####	0.00	96.00	4.00	0.00	100.00	0.00	

PEAK HR.

FACTOR:	0.714	0.000	0.543	0.697	0.723
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CONTROL: 1-Way Stop (NB)

COMMENT 1:

GPS: 33.277857, -111.652154

Intersection Turning Movement



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

N-S STREET: Hawes Rd 0 DATE: 08/03/21 LOCATION: Queen Creek
E-W STREET: Germann Rd DAY: TUESDAY PROJECT#: 21-1464-006

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	0	0	0	1	1	0	1	0	
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM	2	0	1	0	0	0	0	84	3	3	66	0	159
2:45 PM	4	0	0	0	0	0	0	77	3	0	45	0	129
3:00 PM	2	0	0	0	0	0	0	63	1	0	48	0	114
3:15 PM	3	0	0	0	0	0	0	80	3	0	65	0	151
3:30 PM	6	0	1	0	0	0	0	64	2	0	85	0	158
3:45 PM	2	0	0	0	0	0	0	172	3	0	78	0	255
4:00 PM	2	0	0	0	0	0	0	146	3	0	56	0	207
4:15 PM	3	0	0	0	0	0	0	85	2	0	51	0	141
4:30 PM	2	0	0	0	0	0	0	113	2	2	37	0	156
4:45 PM	3	0	0	0	0	0	0	98	3	2	41	0	147
5:00 PM	1	0	0	0	0	0	0	107	3	1	38	0	150
5:15 PM	1	0	0	0	0	0	0	82	1	0	32	0	116
5:30 PM	1	0	0	0	0	0	0	79	3	1	42	0	126
5:45 PM	3	0	2	0	0	0	0	60	3	0	35	0	103
6:00 PM	2	0	0	0	0	0	0	54	2	1	29	0	88
6:15 PM	1	0	1	0	0	0	0	69	3	0	26	0	100
6:30 PM													
6:45 PM													

TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
Volumes	38	0	5	0	0	0	0	1433	40	10	774	0	2300
Approach %	88.37	0.00	11.63	####	####	####	0.00	97.28	2.72	1.28	98.72	0.00	
App/Depart	43	/	0	0	/	50	1473	/	1438	784	/	812	

PM Peak Hr Begins at: 315 PM

PEAK

Volumes	13	0	1	0	0	0	0	462	11	0	284	0	771
Approach %	92.86	0.00	7.14	####	####	####	0.00	97.67	2.33	0.00	100.00	0.00	

PEAK HR.

FACTOR:	0.500	0.000	0.676	0.835	0.756
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CONTROL:

COMMENT 1:

GPS:

HOURS:

1-Way Stop (NB)

0

33.277857, -111.652154

	FROM:		TO:	
AM	700	AM	900	AM
NOON	0	0	0	0
PM	230	PM	630	PM



FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745



veracitytrafficgroup

Pedestrian & Bicycle Study

N-S STREET: Hawes Rd
E-W STREET: Germann Rd

Date: 08/03/21
Day: TUESDAY

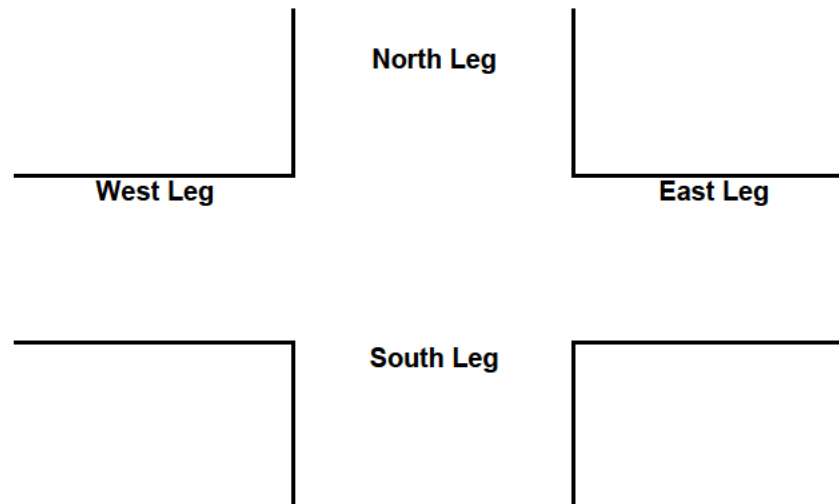
City: Queen Creek
Project #: 21-1464-006

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
7:00 AM	0	0	0	0
7:15 AM	0	0	0	0
7:30 AM	0	0	0	0
7:45 AM	0	0	0	0
8:00 AM	0	0	0	0
8:15 AM	0	0	0	0
8:30 AM	0	0	0	0
8:45 AM	0	0	0	0
TOTAL	0	0	0	0

	PEDESTRIANS			
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	0	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	0	0	0

	BICYCLES			
	N-LEG	S-LEG	E-LEG	W-LEG
2:30 PM	0	0	0	0
2:45 PM	0	0	0	0
3:00 PM	0	0	0	0
3:15 PM	0	0	0	0
3:30 PM	0	0	0	0
3:45 PM	0	0	0	0
4:00 PM	0	0	0	0
4:15 PM	0	0	0	0
4:30 PM	0	0	0	0
4:45 PM	0	1	0	0
5:00 PM	0	0	0	0
5:15 PM	0	0	0	0
5:30 PM	0	0	0	0
5:45 PM	0	0	0	0
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
TOTAL	0	1	0	0



Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-007

Location: Pecos Rd west of 80th St

AM Period	NB	SB	EB	WB			PM Period	NB	SB	EB	WB			
00:00			0		4		12:00			46		74		
00:15			3		1		12:15			57		78		
00:30			3		3		12:30			54		69		
00:45			5	11	1	9	20	12:45		51	208	66	287	495
01:00			1		3		13:00			58		80		
01:15			4		2		13:15			56		81		
01:30			1		5		13:30			62		87		
01:45			3	9	1	11	20	13:45		60	236	80	328	564
02:00			2		1		14:00			55		90		
02:15			0		0		14:15			53		89		
02:30			1		3		14:30			66		90		
02:45			2	5	1	5	10	14:45		80	254	83	352	606
03:00			2		5		15:00			82		78		
03:15			0		6		15:15			91		81		
03:30			0		13		15:30			78		79		
03:45			2	4	10	34	38	15:45		113	364	155	393	757
04:00			2		10		16:00			82		148		
04:15			5		18		16:15			94		88		
04:30			10		22		16:30			97		77		
04:45			19	36	29	79	115	16:45		121	394	89	402	796
05:00			18		27		17:00			98		100		
05:15			12		45		17:15			71		68		
05:30			26		38		17:30			77		65		
05:45			20	76	51	161	237	17:45		110	356	72	305	661
06:00			21		50		18:00			78		117		
06:15			37		69		18:15			70		44		
06:30			40		70		18:30			76		55		
06:45			34	132	116	305	437	18:45		86	310	41	257	567
07:00			44		146		19:00			50		84		
07:15			57		156		19:15			56		41		
07:30			50		209		19:30			71		43		
07:45			39	190	179	690	880	19:45		66	243	43	211	454
08:00			65		104		20:00			56		73		
08:15			58		89		20:15			39		29		
08:30			49		75		20:30			27		12		
08:45			47	219	81	349	568	20:45		39	161	20	134	295
09:00			39		63		21:00			29		31		
09:15			38		76		21:15			32		14		
09:30			32		68		21:30			28		23		
09:45			41	150	72	279	429	21:45		9	98	7	75	173
10:00			60		63		22:00			11		11		
10:15			42		77		22:15			11		7		
10:30			43		61		22:30			13		14		
10:45			51	196	59	260	456	22:45		12	47	10	42	89
11:00			44		75		23:00			5		8		
11:15			58		60		23:15			7		6		
11:30			46		69		23:30			6		3		
11:45			58	206	74	278	484	23:45		12	30	5	22	52

Total Vol. 1234 2460 **3694** 2701 2808 **5509**

GPS Coordinates: 33.285205, -111.662222

Daily Totals

NB	SB	EB	WB	Combined
		3935	5268	9203

AM

PM

Split %	33.4%	66.6%	40.1%	49.0%	51.0%	59.9%
Peak Hour	08:00	07:00	07:00	16:15	15:30	15:45
Volume	219	690	880	410	470	854
P.H.F.	0.84	0.83	0.85	0.85	0.76	0.80

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-008

Location: 80th St south of Pecos Rd

AM Period	NB		SB		EB	WB	PM Period	NB		SB		EB	WB
00:00	0		0				12:00	26		7			
00:15	0		0				12:15	22		16			
00:30	0		1				12:30	29		11			
00:45	0	0	1	2		2	12:45	27	104	14	48		152
01:00	0		0				13:00	29		15			
01:15	0		1				13:15	29		17			
01:30	0		0				13:30	24		21			
01:45	0	0	0	1		1	13:45	25	107	22	75		182
02:00	0		0				14:00	26		26			
02:15	0		0				14:15	28		16			
02:30	0		0				14:30	30		20			
02:45	0	0	0	0			14:45	34	118	26	88		206
03:00	0		0				15:00	27		22			
03:15	1		0				15:15	27		33			
03:30	1		0				15:30	40		31			
03:45	0	2	0	0		2	15:45	83	177	20	106		283
04:00	1		1				16:00	67		24			
04:15	4		1				16:15	39		31			
04:30	4		3				16:30	32		37			
04:45	8	17	7	12		29	16:45	32	170	44	136		306
05:00	11		4				17:00	24		48			
05:15	17		3				17:15	20		23			
05:30	20		5				17:30	17		23			
05:45	22	70	3	15		85	17:45	14	75	28	122		197
06:00	25		8				18:00	16		26			
06:15	37		10				18:15	13		33			
06:30	39		12				18:30	15		18			
06:45	80	181	11	41		222	18:45	5	49	23	100		149
07:00	74		17				19:00	17		9			
07:15	98		13				19:15	8		10			
07:30	146		18				19:30	7		13			
07:45	103	421	12	60		481	19:45	9	41	17	49		90
08:00	46		16				20:00	6		16			
08:15	36		14				20:15	3		11			
08:30	34		8				20:30	1		12			
08:45	24	140	16	54		194	20:45	3	13	6	45		58
09:00	28		7				21:00	5		9			
09:15	25		6				21:15	0		8			
09:30	19		5				21:30	1		8			
09:45	18	90	7	25		115	21:45	1	7	1	26		33
10:00	22		11				22:00	2		1			
10:15	10		12				22:15	1		6			
10:30	20		11				22:30	1		2			
10:45	15	67	16	50		117	22:45	0	4	3	12		16
11:00	27		9				23:00	0		2			
11:15	22		19				23:15	0		1			
11:30	31		11				23:30	1		1			
11:45	27	107	17	56		163	23:45	2	3	3	7		10

Total Vol.	1095	316	1411	868	814	1682
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GPS Coordinates: 33.284728, -111.660914

Daily Totals

NB	SB	EB	WB	Combined
1963	1130			3093

AM

PM

Split %	77.6%	22.4%	45.6 %	51.6%	48.4%	54.4 %
Peak Hour	07:00	07:00	07:00	15:30	16:15	15:30
Volume	421	60	481	229	160	335
P.H.F.	0.72	0.83	0.73	0.69	0.83	0.81

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-009

Location: 80th St north of Germann Rd

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00	0	0			12:00	29	18		
00:15	0	0			12:15	31	18		
00:30	0	1			12:30	32	21		
00:45	0	0	1	2	12:45	28	120	17	74
01:00	0	0			13:00	38	24		
01:15	0	1			13:15	38	27		
01:30	0	0			13:30	31	24		
01:45	0	0	0	1	13:45	39	146	23	98
02:00	0	0			14:00	43	19		
02:15	0	0			14:15	46	27		
02:30	0	0			14:30	28	29		
02:45	0	0	0	0	14:45	34	151	28	103
03:00	0	0			15:00	22	24		
03:15	1	0			15:15	30	32		
03:30	1	0			15:30	48	33		
03:45	0	2	0	0	15:45	97	197	23	112
04:00	3	1			16:00	60	30		
04:15	3	1			16:15	34	36		
04:30	6	2			16:30	33	43		
04:45	14	26	4	8	16:45	33	160	49	158
05:00	9	4			17:00	21	56		
05:15	19	3			17:15	28	31		
05:30	19	4			17:30	19	32		
05:45	26	73	2	13	17:45	24	92	33	152
06:00	32	7			18:00	13	38		
06:15	37	10			18:15	12	38		
06:30	43	7			18:30	17	20		
06:45	76	188	4	28	18:45	9	51	22	118
07:00	82	12			19:00	16	18		
07:15	112	10			19:15	9	12		
07:30	170	17			19:30	12	21		
07:45	94	458	9	48	19:45	10	47	31	82
08:00	50	16			20:00	6	17		
08:15	34	10			20:15	2	11		
08:30	43	8			20:30	1	13		
08:45	25	152	12	46	20:45	4	13	7	48
09:00	29	7			21:00	3	9		
09:15	24	5			21:15	0	8		
09:30	19	5			21:30	1	8		
09:45	17	89	4	21	21:45	2	6	1	26
10:00	20	11			22:00	1	1		
10:15	13	11			22:15	1	6		
10:30	19	9			22:30	1	2		
10:45	17	69	17	48	22:45	0	3	2	11
11:00	25	10			23:00	1	3		
11:15	26	16			23:15	0	1		
11:30	31	16			23:30	2	1		
11:45	35	117	18	60	23:45	1	4	3	8

Total Vol.	1174	275	1449	990	990	1980
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GPS Coordinates: 33.278538, -111.660876

Daily Totals

NB	SB	EB	WB	Combined
2164	1265			3429

AM

PM

Split %	81.0%	19.0%	42.3 %	50.0%	50.0%	57.7 %
Peak Hour	07:00	11:45	07:00	15:30	16:15	15:30
Volume	458	75	506	239	184	361
P.H.F.	0.67	0.89	0.68	0.62	0.82	0.75

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-010

Location: 80th St / 196th St south of Germann Rd

AM Period	NB		SB		EB	WB	PM Period	NB		SB		EB	WB
00:00	0		0				12:00	21		8			
00:15	0		1				12:15	26		11			
00:30	0		1				12:30	25		15			
00:45	1	1	1	3		4	12:45	22	94	17	51		145
01:00	0		1				13:00	29		16			
01:15	0		0				13:15	29		11			
01:30	0		1				13:30	26		12			
01:45	0	0	0	2		2	13:45	27	111	18	57		168
02:00	0		0				14:00	21		13			
02:15	0		0				14:15	25		26			
02:30	0		0				14:30	24		24			
02:45	0	0	0	0			14:45	27	97	35	98		195
03:00	1		0				15:00	17		31			
03:15	1		0				15:15	17		40			
03:30	1		0				15:30	31		45			
03:45	3	6	0	0		6	15:45	41	106	32	148		254
04:00	3		0				16:00	29		41			
04:15	4		0				16:15	19		37			
04:30	4		0				16:30	23		42			
04:45	9	20	1	1		21	16:45	23	94	48	168		262
05:00	7		1				17:00	16		49			
05:15	18		0				17:15	22		30			
05:30	15		2				17:30	14		33			
05:45	14	54	4	7		61	17:45	20	72	43	155		227
06:00	21		5				18:00	17		30			
06:15	27		3				18:15	13		43			
06:30	33		8				18:30	15		33			
06:45	54	135	8	24		159	18:45	6	51	32	138		189
07:00	72		12				19:00	11		21			
07:15	66		11				19:15	12		21			
07:30	74		30				19:30	11		13			
07:45	55	267	18	71		338	19:45	7	41	20	75		116
08:00	29		26				20:00	11		21			
08:15	31		17				20:15	8		15			
08:30	38		21				20:30	9		13			
08:45	14	112	20	84		196	20:45	10	38	13	62		100
09:00	17		10				21:00	4		11			
09:15	20		11				21:15	2		16			
09:30	11		5				21:30	1		12			
09:45	24	72	10	36		108	21:45	3	10	0	39		49
10:00	24		15				22:00	1		1			
10:15	14		12				22:15	1		9			
10:30	26		23				22:30	2		3			
10:45	11	75	19	69		144	22:45	0	4	4	17		21
11:00	25		15				23:00	2		8			
11:15	16		18				23:15	1		2			
11:30	22		18				23:30	0		0			
11:45	32	95	16	67		162	23:45	1	4	3	13		17

Total Vol.	837	364	1201	722	1021	1743
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GPS Coordinates: 33.277356, -111.660745

Daily Totals

NB	SB	EB	WB	Combined
1559	1385			2944

AM

PM

Split %	69.7%	30.3%	40.8 %	41.4%	58.6%	59.2 %
Peak Hour	07:00	07:30	07:00	15:30	16:15	15:15
Volume	267	91	338	120	176	276
P.H.F.	0.90	0.76	0.81	0.73	0.90	0.91

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-011

Location: Germann Rd west of 80th St / 196th St

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB
00:00			2	0	12:00			45	35
00:15			3	2	12:15			67	31
00:30			1	0	12:30			59	36
00:45			2	8	12:45			75	246
01:00			2						41
01:15			1						143
01:30			3						389
01:45			0	6					
02:00			2		13:00			67	36
02:15			1		13:15			71	45
02:30			3		13:30			39	34
02:45			0	6	13:45			50	227
03:00			1						37
03:15			0						152
03:30			2						379
03:45			0	3					
04:00			1		14:00			48	48
04:15			0		14:15			57	48
04:30			2		14:30			75	47
04:45			0	3	14:45			83	263
05:00			1						45
05:15			3						
05:30			4						
05:45			1	9				101	385
06:00			4						55
06:15			8						171
06:30			6						556
06:45			13	31					
07:00			23		15:00			67	33
07:15			16		15:15			110	35
07:30			17		15:30			107	48
07:45			23	79	15:45			101	385
08:00			14						55
08:15			35						171
08:30			33						556
08:45			38	120					
09:00			42		16:00			105	44
09:15			99		16:15			70	41
09:30			161		16:30			102	32
09:45			52	354	16:45			100	377
10:00			53						35
10:15			47						152
10:30			39						529
10:45			52	191					
11:00			42		17:00			92	36
11:15			99		17:15			81	35
11:30			161		17:30			81	27
11:45			52	79	17:45			75	329
12:00			14						26
12:15			35						124
12:30			33						453
12:45			38	120					
13:00			42		18:00			58	29
13:15			99		18:15			79	30
13:30			161		18:30			66	28
13:45			52	354	18:45			55	258
14:00			53						27
14:15			47						114
14:30			39						372
14:45			52	191					
15:00			42		19:00			27	31
15:15			99		19:15			40	25
15:30			161		19:30			28	26
15:45			52	354	19:45			33	128
16:00			53						21
16:15			47						103
16:30			39						231
16:45			52	191					
17:00			42		20:00			43	19
17:15			99		20:15			29	20
17:30			161		20:30			30	24
17:45			52	191	20:45			17	119
18:00			42						19
18:15			99						20
18:30			161						24
18:45			52	191					82
19:00			42		21:00			17	15
19:15			99		21:15			20	9
19:30			161		21:30			12	7
19:45			52	191	21:45			10	59
20:00			42						8
20:15			99						3
20:30			161						6
20:45			52	191					21
21:00			42		22:00			7	8
21:15			99		22:15			10	3
21:30			161		22:30			7	6
21:45			52	191	22:45			8	32
22:00			42						4
22:15			99						21
22:30			161						53
22:45			52	191					
23:00			42		23:00			7	2
23:15			99		23:15			13	1
23:30			161		23:30			3	3
23:45			52	191	23:45			3	26

Total Vol. 1286 1313 **2599** 2449 1297 **3746**

GPS Coordinates: 33.277964, -111.661654

Daily Totals

NB	SB	EB	WB	Combined
		3735	2610	6345

AM

PM

Split %	49.5%	50.5%	41.0%	65.4%	34.6%	59.0%
Peak Hour	07:15	06:30	07:00	15:15	14:00	15:15
Volume	365	257	605	423	188	605
P.H.F.	0.57	0.87	0.74	0.96	0.98	0.97

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-012

Location: Germann Rd east of 80th St / 196th St

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			2	0	12:00			55	43			
00:15			2	2	12:15			73	35			
00:30			1	0	12:30			64	42			
00:45			2	7	0	2	9	77	269	49	169	438
01:00			1	0	13:00			77	47			
01:15			2	2	13:15			83	50			
01:30			2	2	13:30			55	43			
01:45			0	5	3	7	12	55	270	49	189	459
02:00			1	0	14:00			54	70			
02:15			0	2	14:15			55	66			
02:30			2	3	14:30			84	55			
02:45			0	3	0	5	8	84	277	60	251	528
03:00			1	0	15:00			62	40			
03:15			3	2	15:15			106	52			
03:30			4	2	15:30			95	65			
03:45			1	9	4	8	17	103	366	122	279	645
04:00			3	3	16:00			99	80			
04:15			9	9	16:15			66	53			
04:30			8	18	16:30			103	42			
04:45			15	35	25	55	90	101	369	45	220	589
05:00			26	16	17:00			101	43			
05:15			18	28	17:15			76	35			
05:30			19	26	17:30			79	31			
05:45			21	84	32	102	186	67	323	32	141	464
06:00			14	52	18:00			66	25			
06:15			43	42	18:15			71	26			
06:30			33	64	18:30			53	30			
06:45			36	126	87	245	371	47	237	32	113	350
07:00			48	90	19:00			27	39			
07:15			113	128	19:15			32	23			
07:30			185	177	19:30			37	28			
07:45			47	393	109	504	897	43	139	23	113	252
08:00			44	69	20:00			42	17			
08:15			37	48	20:15			29	18			
08:30			28	63	20:30			34	20			
08:45			41	150	53	233	383	14	119	16	71	190
09:00			28	53	21:00			15	14			
09:15			25	43	21:15			13	8			
09:30			34	42	21:30			8	7			
09:45			31	118	45	183	301	11	47	7	36	83
10:00			39	42	22:00			7	8			
10:15			32	39	22:15			7	3			
10:30			33	38	22:30			6	5			
10:45			51	155	45	164	319	6	26	4	20	46
11:00			37	39	23:00			3	2			
11:15			41	57	23:15			13	1			
11:30			33	56	23:30			3	4			
11:45			59	170	48	200	370	3	22	2	9	31

Total Vol. 1255 1708 **2963** 2464 1611 **4075**

GPS Coordinates: 33.277939, -111.659988

Daily Totals

NB	SB	EB	WB	Combined
		3719	3319	7038

AM

PM

Split %	42.4%	57.6%	42.1%	60.5%	39.5%	57.9%
Peak Hour	07:00	07:00	07:00	15:15	15:30	15:15
Volume	393	504	897	403	320	722
P.H.F.	0.53	0.71	0.62	0.95	0.66	0.80

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-013

Location: Germann Rd west of Hawes Rd

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			2	0	12:00			61	51			
00:15			2	2	12:15			66	54			
00:30			1	0	12:30			60	42			
00:45			2	7	0	2	9	57	244	48	195	439
01:00			0	0	13:00			75	57			
01:15			3	1	13:15			77	51			
01:30			1	2	13:30			51	55			
01:45			0	4	1	4	8	66	269	46	209	478
02:00			1	2	14:00			60	56			
02:15			0	2	14:15			65	56			
02:30			0	3	14:30			87	68			
02:45			2	3	0	7	10	80	292	49	229	521
03:00			1	0	15:00			64	50			
03:15			2	2	15:15			83	68			
03:30			5	2	15:30			66	91			
03:45			2	10	4	8	18	175	388	80	289	677
04:00			4	3	16:00			149	58			
04:15			7	9	16:15			87	54			
04:30			8	18	16:30			115	39			
04:45			12	31	30	60	91	101	452	44	195	647
05:00			23	24	17:00			110	39			
05:15			16	39	17:15			83	33			
05:30			12	36	17:30			82	43			
05:45			21	72	39	138	210	63	338	38	153	491
06:00			14	60	18:00			56	31			
06:15			40	45	18:15			72	27			
06:30			36	66	18:30			52	32			
06:45			40	130	82	253	383	49	229	33	123	352
07:00			39	102	19:00			43	28			
07:15			90	180	19:15			36	25			
07:30			161	134	19:30			46	36			
07:45			60	350	86	502	852	44	169	22	111	280
08:00			46	73	20:00			41	15			
08:15			37	57	20:15			27	22			
08:30			28	60	20:30			32	22			
08:45			41	152	58	248	400	17	117	19	78	195
09:00			34	48	21:00			13	15			
09:15			24	43	21:15			17	8			
09:30			36	50	21:30			6	6			
09:45			32	126	48	189	315	13	49	11	40	89
10:00			38	41	22:00			12	9			
10:15			31	40	22:15			9	3			
10:30			36	35	22:30			5	5			
10:45			52	157	47	163	320	4	30	5	22	52
11:00			39	39	23:00			4	3			
11:15			40	51	23:15			12	1			
11:30			48	42	23:30			3	3			
11:45			67	194	47	179	373	4	23	1	8	31

Total Vol. 1236 1753 **2989** 2600 1652 **4252**

GPS Coordinates: 33.277884, -111.653001

Daily Totals

NB	SB	EB	WB	Combined
		3836	3405	7241

AM

PM

Split %	41.4%	58.6%	41.3%	61.1%	38.9%	58.7%
Peak Hour	07:15	07:00	07:00	15:45	15:15	15:15
Volume	357	502	852	526	297	770
P.H.F.	0.55	0.70	0.72	0.75	0.82	0.75

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Queen Creek

Project #: 21-1464-014

Location: Germann Rd east of Hawes Rd

AM Period	NB	SB	EB	WB	PM Period	NB	SB	EB	WB			
00:00			1	0	12:00			61	50			
00:15			2	2	12:15			67	55			
00:30			1	0	12:30			59	43			
00:45			2	6	0	2	8	54	241	45	193	434
01:00			0	0	13:00			75	56			
01:15			3	1	13:15			77	50			
01:30			1	2	13:30			51	54			
01:45			0	4	1	4	8	67	270	43	203	473
02:00			1	2	14:00			59	53			
02:15			0	2	14:15			63	55			
02:30			0	3	14:30			85	69			
02:45			2	3	0	7	10	77	284	45	222	506
03:00			1	0	15:00			63	48			
03:15			2	2	15:15			80	65			
03:30			5	2	15:30			65	85			
03:45			2	10	3	7	17	172	380	78	276	656
04:00			4	3	16:00			146	56			
04:15			7	9	16:15			85	51			
04:30			8	17	16:30			113	39			
04:45			13	32	29	58	90	98	442	43	189	631
05:00			22	23	17:00			107	39			
05:15			15	39	17:15			82	32			
05:30			11	33	17:30			79	43			
05:45			20	68	38	133	201	62	330	35	149	479
06:00			13	59	18:00			54	30			
06:15			38	42	18:15			70	26			
06:30			34	61	18:30			48	31			
06:45			42	127	75	237	364	47	219	33	120	339
07:00			38	95	19:00			43	29			
07:15			85	166	19:15			34	25			
07:30			155	122	19:30			44	31			
07:45			59	337	80	463	800	43	164	22	107	271
08:00			43	73	20:00			40	15			
08:15			36	54	20:15			25	21			
08:30			27	58	20:30			32	23			
08:45			40	146	56	241	387	18	115	19	78	193
09:00			33	48	21:00			13	15			
09:15			24	41	21:15			17	8			
09:30			37	52	21:30			5	6			
09:45			33	127	49	190	317	13	48	11	40	88
10:00			36	40	22:00			11	9			
10:15			29	40	22:15			9	2			
10:30			39	34	22:30			5	5			
10:45			50	154	45	159	313	4	29	5	21	50
11:00			39	38	23:00			3	3			
11:15			41	49	23:15			12	1			
11:30			49	41	23:30			3	3			
11:45			69	198	45	173	371	4	22	1	8	30

Total Vol. 1212 1674 **2886** 2544 1606 **4150**

GPS Coordinates: 33.277895, -111.651502

Daily Totals

NB	SB	EB	WB	Combined
		3756	3280	7036

AM

PM

Split %	42.0%	58.0%	41.0%	61.3%	38.7%	59.0%
Peak Hour	07:15	07:00	07:00	15:45	15:15	15:15
Volume	342	463	800	516	284	747
P.H.F.	0.55	0.70	0.72	0.75	0.84	0.75

Prepared by: Field Data Services of Arizona/Veracity Traffic Group (520) 316-6745

Volumes for: Tuesday, August 3, 2021

City: Mesa

Project #: 21-1464-015

Location: Hawes Rd south of Germann Rd

AM Period	NB		SB		EB	WB	PM Period	NB		SB		EB	WB
00:00	0		1				12:00	2		1			
00:15	0		0				12:15	2		2			
00:30	0		0				12:30	2		4			
00:45	0	0	0	1		1	12:45	3	9	3	10		19
01:00	0		0				13:00	3		2			
01:15	0		0				13:15	3		2			
01:30	0		0				13:30	2		1			
01:45	0	0	0	0			13:45	5	13	1	6		19
02:00	0		0				14:00	3		1			
02:15	0		0				14:15	2		3			
02:30	0		0				14:30	3		6			
02:45	0	0	0	0			14:45	4	12	3	13		25
03:00	0		0				15:00	2		1			
03:15	0		0				15:15	3		3			
03:30	0		0				15:30	7		2			
03:45	1	1	0	0		1	15:45	2	14	3	9		23
04:00	0		0				16:00	2		3			
04:15	0		0				16:15	3		2			
04:30	1		0				16:30	2		4			
04:45	3	4	1	1		5	16:45	3	10	5	14		24
05:00	1		1				17:00	1		4			
05:15	0		1				17:15	1		1			
05:30	3		1				17:30	1		4			
05:45	1	5	1	4		9	17:45	5	8	3	12		20
06:00	1		1				18:00	2		3			
06:15	3		2				18:15	2		3			
06:30	6		3				18:30	1		4			
06:45	9	19	0	6		25	18:45	2	7	4	14		21
07:00	7		1				19:00	1		2			
07:15	14		5				19:15	2		4			
07:30	12		6				19:30	5		2			
07:45	7	40	2	14		54	19:45	0	8	1	9		17
08:00	1		4				20:00	0		1			
08:15	3		1				20:15	1		2			
08:30	2		1				20:30	0		1			
08:45	2	8	1	7		15	20:45	1	2	0	4		6
09:00	1		2				21:00	0		0			
09:15	2		0				21:15	0		0			
09:30	3		4				21:30	0		1			
09:45	1	7	1	7		14	21:45	0	0	0	1		1
10:00	2		3				22:00	0		1			
10:15	0		2				22:15	1		0			
10:30	4		0				22:30	0		0			
10:45	3	9	3	8		17	22:45	0	1	0	1		2
11:00	2		1				23:00	0		1			
11:15	4		1				23:15	0		0			
11:30	4		2				23:30	0		0			
11:45	5	15	1	5		20	23:45	0	0	0	1		1

Total Vol.	108	53	161	84	94	178
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GPS Coordinates: 33.277370, -111.652167

Daily Totals

NB	SB	EB	WB	Combined
192	147			339

AM

PM

Split %	67.1%	32.9%	47.5%	47.2%	52.8%	52.5%
Peak Hour	06:45	07:15	06:45	14:45	16:15	14:00
Volume	42	17	54	16	15	25
P.H.F.	0.75	0.71	0.71	0.57	0.75	0.69

APPENDIX C: Existing Level-of-Service Analysis

1: Sossaman Rd & Germann Rd
Existing Conditions - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	12.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	97	129	644	161	88	267
Future Vol, veh/h	97	129	644	161	88	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	105	140	700	175	96	290

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1182	700	0	0	700
Stage 1	700	-	-	-	-
Stage 2	482	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	210	439	-	-	897
Stage 1	493	-	-	-	-
Stage 2	621	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	183	439	-	-	897
Mov Cap-2 Maneuver	183	-	-	-	-
Stage 1	493	-	-	-	-
Stage 2	542	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	71.3	0	2.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	274	897
HCM Lane V/C Ratio	-	-	0.897	0.107
HCM Control Delay (s)	-	-	71.3	9.5
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	8	0.4

2: 80th Street/80th St & Germann Rd
Existing Conditions - AM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	13											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	23	231	59	9	168	226	34	99	56	26	23	3
Future Vol, veh/h	23	231	59	9	168	226	34	99	56	26	23	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	385	64	10	280	377	37	108	61	43	25	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	657	0	0	449	0	0	970	1144	417	1041	988	469
Stage 1	-	-	-	-	-	-	467	467	-	489	489	-
Stage 2	-	-	-	-	-	-	503	677	-	552	499	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	931	-	-	1111	-	-	233	200	636	208	247	594
Stage 1	-	-	-	-	-	-	576	562	-	561	549	-
Stage 2	-	-	-	-	-	-	551	452	-	518	544	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	931	-	-	1111	-	-	205	190	636	100	235	594
Mov Cap-2 Maneuver	-	-	-	-	-	-	205	190	-	100	235	-
Stage 1	-	-	-	-	-	-	555	542	-	541	541	-
Stage 2	-	-	-	-	-	-	515	445	-	362	524	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.1			67			61.5		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	244	931	-	-	1111	-	-	131
HCM Lane V/C Ratio	0.842	0.027	-	-	0.009	-	-	0.547
HCM Control Delay (s)	67	9	0	-	8.3	0	-	61.5
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	6.7	0.1	-	-	0	-	-	2.7

3: Extg West Driveway & Germann Rd Existing Conditions - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑	↘↗	
Traffic Vol, veh/h	230	83	35	403	0	0
Future Vol, veh/h	230	83	35	403	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	250	138	58	438	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	388	0	804	125
Stage 1	-	-	-	-	250	-
Stage 2	-	-	-	-	554	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1169	-	336	903
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1169	-	319	903
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	545	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1169	-	
HCM Lane V/C Ratio	-	-	-	0.05	-	
HCM Control Delay (s)	0	-	-	8.2	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.2	-	

4: Extg East Driveway & Germann Rd
Existing Conditions - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑↓	
Traffic Vol, veh/h	230	0	0	395	43	118
Future Vol, veh/h	230	0	0	395	43	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	250	0	0	658	72	197

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	-	908	125
Stage 1	-	-	-	250	-
Stage 2	-	-	-	658	-
Critical Hdwy	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	290	903
Stage 1	-	0	0	769	-
Stage 2	-	0	0	514	-
Platoon blocked, %	-		-		
Mov Cap-1 Maneuver	-	-	-	290	903
Mov Cap-2 Maneuver	-	-	-	290	-
Stage 1	-	-	-	769	-
Stage 2	-	-	-	514	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	577	-	-
HCM Lane V/C Ratio	0.465	-	-
HCM Control Delay (s)	16.5	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	2.5	-	-

5: Hawes Rd & Germann Rd
Existing Conditions - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	292	12	1	328	22	1
Future Vol, veh/h	292	12	1	328	22	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	317	13	1	357	24	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	330	0	676	317
Stage 1	-	-	-	-	317	-
Stage 2	-	-	-	-	359	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1229	-	419	724
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	707	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1229	-	419	724
Mov Cap-2 Maneuver	-	-	-	-	419	-
Stage 1	-	-	-	-	738	-
Stage 2	-	-	-	-	706	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	427	-	-	1229	-	
HCM Lane V/C Ratio	0.059	-	-	0.001	-	
HCM Control Delay (s)	14	-	-	7.9	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile O(veh)	0.2	-	-	0	-	

6: 80th St & Pecos Rd
Existing Conditions - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	43.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	167	45	15	265	316	15
Future Vol, veh/h	167	45	15	265	316	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	182	75	25	288	527	25
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	257	0	520	182
Stage 1	-	-	-	-	182	-
Stage 2	-	-	-	-	338	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1308	-	~ 516	861
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1308	-	~ 504	861
Mov Cap-2 Maneuver	-	-	-	-	~ 504	-
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	705	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		88.9	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	514	-	-	1308	-	
HCM Lane V/C Ratio	1.073	-	-	0.019	-	
HCM Control Delay (s)	88.9	-	-	7.8	0	
HCM Lane LOS	F	-	-	A	A	
HCM 95th %tile Q(veh)	16.9	-	-	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

9: Sossaman Rd & Pecos Rd
Existing Conditions - AM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	88	123	17	139	30	330	263	41	17	95	8
Future Volume (veh/h)	34	88	123	17	139	30	330	263	41	17	95	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	96	134	18	151	33	359	286	45	18	103	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	297	146	203	240	273	60	756	743	117	515	595	52
Arrive On Green	0.06	0.21	0.21	0.03	0.18	0.18	0.15	0.47	0.47	0.03	0.35	0.35
Sat Flow, veh/h	1781	707	986	1781	1487	325	1781	1577	248	1781	1696	148
Grp Volume(v), veh/h	37	0	230	18	0	184	359	0	331	18	0	112
Grp Sat Flow(s),veh/h/ln	1781	0	1693	1781	0	1812	1781	0	1826	1781	0	1844
Q Serve(g_s), s	1.3	0.0	10.2	0.7	0.0	7.5	9.7	0.0	9.6	0.5	0.0	3.4
Cycle Q Clear(g_c), s	1.3	0.0	10.2	0.7	0.0	7.5	9.7	0.0	9.6	0.5	0.0	3.4
Prop In Lane	1.00		0.58	1.00		0.18	1.00		0.14	1.00		0.08
Lane Grp Cap(c), veh/h	297	0	349	240	0	333	756	0	860	515	0	647
V/C Ratio(X)	0.12	0.00	0.66	0.07	0.00	0.55	0.47	0.00	0.38	0.03	0.00	0.17
Avail Cap(c_a), veh/h	437	0	590	422	0	632	941	0	860	696	0	647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	29.8	25.8	0.0	30.3	11.6	0.0	14.0	15.7	0.0	18.3
Incr Delay (d2), s/veh	0.2	0.0	2.1	0.1	0.0	1.4	0.5	0.0	1.3	0.0	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	4.2	0.3	0.0	3.3	3.6	0.0	4.0	0.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.7	0.0	31.9	25.9	0.0	31.8	12.1	0.0	15.3	15.7	0.0	18.9
LnGrp LOS	C	A	C	C	A	C	B	A	B	B	A	B
Approach Vol, veh/h	267			202			690			130		
Approach Delay, s/veh	30.9			31.2			13.6			18.5		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.7	45.0	6.7	23.4	16.5	35.2	8.5	21.5				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	2.5	11.6	2.7	12.2	11.7	5.4	3.3	9.5				
Green Ext Time (p_c), s	0.0	2.1	0.0	1.2	0.8	0.5	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay	20.5											
HCM 6th LOS	C											

1: Sossaman Rd & Germann Rd
Existing Conditions - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	89	82	340	226	157	439
Future Vol, veh/h	89	82	340	226	157	439
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	89	370	246	171	477
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1189	370	0	0	370	0
Stage 1	370	-	-	-	-	-
Stage 2	819	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	208	676	-	-	1189	-
Stage 1	699	-	-	-	-	-
Stage 2	433	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	167	676	-	-	1189	-
Mov Cap-2 Maneuver	167	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	348	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	46.8	0		2.2		
HCM LOS	E					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	261	1189	-	
HCM Lane V/C Ratio	-	-	0.712	0.144	-	
HCM Control Delay (s)	-	-	46.8	8.5	0	
HCM Lane LOS	-	-	E	A	A	
HCM 95th %tile Q(veh)	-	-	4.9	0.5	-	

2: 80th Street/80th St & Germann Rd
Existing Conditions - PM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	11.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	11	285	89	14	139	126	27	60	19	62	45	5
Future Vol, veh/h	11	285	89	14	139	126	27	60	19	62	45	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	475	97	15	232	210	29	65	21	103	49	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	442	0	0	572	0	0	942	1020	524	958	963	337
Stage 1	-	-	-	-	-	-	548	548	-	367	367	-
Stage 2	-	-	-	-	-	-	394	472	-	591	596	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1118	-	-	1001	-	-	243	237	553	237	256	705
Stage 1	-	-	-	-	-	-	521	517	-	653	622	-
Stage 2	-	-	-	-	-	-	631	559	-	493	492	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1118	-	-	1001	-	-	199	228	553	173	247	705
Mov Cap-2 Maneuver	-	-	-	-	-	-	199	228	-	173	247	-
Stage 1	-	-	-	-	-	-	513	509	-	643	610	-
Stage 2	-	-	-	-	-	-	564	548	-	407	484	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			32.1			72		
HCM LOS							D			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	1118	-	-	1001	-	-	196
HCM Lane V/C Ratio	0.47	0.011	-	-	0.015	-	-	0.804
HCM Control Delay (s)	32.1	8.3	0	-	8.7	0	-	72
HCM Lane LOS	D	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	2.3	0	-	-	0	-	-	5.7

3: Extg West Driveway & Germann Rd Existing Conditions - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	320	83	54	319	0	0
Future Vol, veh/h	320	83	54	319	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	348	138	90	347	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	486
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.13
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.219
Pot Cap-1 Maneuver	-	-	1075
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1075
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1075	-
HCM Lane V/C Ratio	-	-	-	0.084	-
HCM Control Delay (s)	0	-	-	8.7	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0.3	-

4: Extg East Driveway & Germann Rd
Existing Conditions - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	6.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	
Traffic Vol, veh/h	320	0	0	311	62	152
Future Vol, veh/h	320	0	0	311	62	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	348	0	0	518	103	253
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	-	-	-	866	174
Stage 1	-	-	-	-	348	-
Stage 2	-	-	-	-	518	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	308	840
Stage 1	-	0	0	-	687	-
Stage 2	-	0	0	-	597	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	308	840
Mov Cap-2 Maneuver	-	-	-	-	308	-
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	597	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		22		
HCM LOS				C		
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	560	-	-			
HCM Lane V/C Ratio	0.637	-	-			
HCM Control Delay (s)	22	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile Q(veh)	4.5	-	-			

5: Hawes Rd & Germann Rd
Existing Conditions - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	379	9	0	276	13	1
Future Vol, veh/h	379	9	0	276	13	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	412	10	0	300	14	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	422	0	712	412
Stage 1	-	-	-	-	412	-
Stage 2	-	-	-	-	300	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1137	-	399	640
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	752	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1137	-	399	640
Mov Cap-2 Maneuver	-	-	-	-	399	-
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	752	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14.1	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	410	-	-	1137	-	
HCM Lane V/C Ratio	0.037	-	-	-	-	
HCM Control Delay (s)	14.1	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.1	-	-	0	-	

6: 80th St & Pecos Rd
Existing Conditions - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	6.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	267	97	9	248	145	32
Future Vol, veh/h	267	97	9	248	145	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	290	162	15	270	242	53

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	452
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1109
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1109
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	22.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	496	-	-	1109	-
HCM Lane V/C Ratio	0.595	-	-	0.014	-
HCM Control Delay (s)	22.4	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	3.8	-	-	0	-

9: Sossaman Rd & Pecos Rd
Existing Conditions - PM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	206	273	64	198	29	216	155	44	89	516	42
Future Volume (veh/h)	29	206	273	64	198	29	216	155	44	89	516	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	224	297	70	215	32	235	168	48	97	561	46
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	203	269	190	476	71	276	526	150	540	585	48
Arrive On Green	0.05	0.28	0.28	0.07	0.30	0.30	0.11	0.38	0.38	0.07	0.34	0.34
Sat Flow, veh/h	1781	729	967	1781	1591	237	1781	1399	400	1781	1705	140
Grp Volume(v), veh/h	32	0	521	70	0	247	235	0	216	97	0	607
Grp Sat Flow(s),veh/h/ln	1781	0	1696	1781	0	1828	1781	0	1798	1781	0	1845
Q Serve(g_s), s	1.3	0.0	28.5	2.7	0.0	11.2	8.4	0.0	8.7	3.4	0.0	33.0
Cycle Q Clear(g_c), s	1.3	0.0	28.5	2.7	0.0	11.2	8.4	0.0	8.7	3.4	0.0	33.0
Prop In Lane	1.00		0.57	1.00		0.13	1.00		0.22	1.00		0.08
Lane Grp Cap(c), veh/h	368	0	472	190	0	547	276	0	676	540	0	633
V/C Ratio(X)	0.09	0.00	1.10	0.37	0.00	0.45	0.85	0.00	0.32	0.18	0.00	0.96
Avail Cap(c_a), veh/h	476	0	472	262	0	547	453	0	676	601	0	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	0.0	37.0	26.7	0.0	29.1	23.5	0.0	22.7	18.6	0.0	32.9
Incr Delay (d2), s/veh	0.1	0.0	72.7	1.2	0.0	0.6	8.1	0.0	1.2	0.2	0.0	26.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	21.1	1.2	0.0	5.0	4.0	0.0	3.9	1.4	0.0	19.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.3	0.0	109.6	27.9	0.0	29.7	31.6	0.0	23.9	18.8	0.0	59.8
LnGrp LOS	C	A	F	C	A	C	C	A	C	B	A	E
Approach Vol, veh/h	553			317			451			704		
Approach Delay, s/veh	104.7			29.3			27.9			54.1		
Approach LOS	F			C			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	45.0	10.9	35.0	14.8	41.7	8.8	37.1				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	5.4	10.7	4.7	30.5	10.4	35.0	3.3	13.2				
Green Ext Time (p_c), s	0.1	1.3	0.1	0.0	0.5	0.0	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay	58.2											
HCM 6th LOS	E											

APPENDIX D: Trip Generation Calculation

Heritage Gateway Academy
October 15, 2021

DESCRIPTION OF LAND USE						VEHICLE GENERATED TRIPS									Data Points	AVERAGE RATE or EQUATION						DIRECTIONAL DISTRIBUTION					
						Daily			AM Peak Hour			PM Peak Hour				Daily	AM Peak Hour	PM Peak Hour	Daily		AM Peak Hour		PM Peak Hour				
Phase	Land Use	ITE Land Use Code (LUC)		SIZE	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit				Enter	Exit	Enter	Exit	Enter	Exit			
Opening Year		537	Charter Elementary School	860 Students	796	795	1591	519	461	980	273	320	593		1.85		1.14		0.69		50%	50%	53%	47%	46%	54%	
Full Build-out		537	Charter Elementary School	1240 Students	1147	1147	2294	749	665	1414	394	462	856		1.85		1.14		0.69		50%	50%	53%	47%	46%	54%	

Source: ITE Trip Generation Manual 10th Edition

960 Heritage K-8 Students
100 Pre-K Students
180 Lexington Academy
1240 TOTAL

APPENDIX E: Future 2022 Level-of-Service Analysis

1: Sossaman Rd & Germann Rd
2022 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	49.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	102	135	891	169	92	396
Future Vol, veh/h	102	135	891	169	92	396
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	147	968	184	100	430

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1598	968	0
Stage 1	968	-	-
Stage 2	630	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	117	308	-
Stage 1	368	-	-
Stage 2	531	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	~ 95	308	-
Mov Cap-2 Maneuver	~ 95	-	-
Stage 1	368	-	-
Stage 2	433	-	-

Approach	WB	NB	SB
HCM Control Delay, s\$	366.3	0	2.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	157	712
HCM Lane V/C Ratio	-	-	1.641	0.14
HCM Control Delay (s)	-	-	\$ 366.3	10.9
HCM Lane LOS	-	-	F	B
HCM 95th %tile Q(veh)	-	-	18	0.5

Notes			
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

2: 80th Street/80th St & Germann Rd
2022 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	18.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	24	243	62	9	176	237	36	104	59	27	24	3
Future Vol, veh/h	24	243	62	9	176	237	36	104	59	27	24	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	26	405	67	10	293	395	39	113	64	45	26	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	688	0	0	472	0	0	1016	1199	439	1090	1035	491
Stage 1	-	-	-	-	-	-	491	491	-	511	511	-
Stage 2	-	-	-	-	-	-	525	708	-	579	524	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	906	-	-	1090	-	-	216	185	618	193	232	578
Stage 1	-	-	-	-	-	-	559	548	-	545	537	-
Stage 2	-	-	-	-	-	-	536	438	-	501	530	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	906	-	-	1090	-	-	187	175	618	80	219	578
Mov Cap-2 Maneuver	-	-	-	-	-	-	187	175	-	80	219	-
Stage 1	-	-	-	-	-	-	537	527	-	524	528	-
Stage 2	-	-	-	-	-	-	499	431	-	339	509	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.1	94.7	91.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	226	906	-	-	1090	-	-	108
HCM Lane V/C Ratio	0.957	0.029	-	-	0.009	-	-	0.688
HCM Control Delay (s)	94.7	9.1	0	-	8.3	0	-	91.7
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	8.4	0.1	-	-	0	-	-	3.6

3: Extg West Driveway & Germann Rd
2022 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	242	83	35	423	0	0
Future Vol, veh/h	242	83	35	423	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	263	138	58	460	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	401	0	839	132
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	576	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1156	-	320	894
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	561	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1156	-	304	894
Mov Cap-2 Maneuver	-	-	-	-	304	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	533	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.9		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1156	-	
HCM Lane V/C Ratio	-	-	-	0.05	-	
HCM Control Delay (s)	0	-	-	8.3	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.2	-	

4: Extg East Driveway & Germann Rd
2022 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	
Traffic Vol, veh/h	242	0	0	415	43	118
Future Vol, veh/h	242	0	0	415	43	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	263	0	0	692	72	197
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	-	-	-	955	132
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	692	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	271	894
Stage 1	-	0	0	-	758	-
Stage 2	-	0	0	-	496	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	271	894
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	496	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		17.4		
HCM LOS				C		
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	554	-	-			
HCM Lane V/C Ratio	0.484	-	-			
HCM Control Delay (s)	17.4	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile Q(veh)	2.6	-	-			

5: Hawes Rd & Germann Rd
2022 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	307	13	1	344	23	1
Future Vol, veh/h	307	13	1	344	23	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	334	14	1	374	25	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	348	0	710	334
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	376	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1211	-	400	708
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	694	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1211	-	400	708
Mov Cap-2 Maneuver	-	-	-	-	400	-
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	693	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14.5	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	407	-	-	1211	-	
HCM Lane V/C Ratio	0.064	-	-	0.001	-	
HCM Control Delay (s)	14.5	-	-	8	0	
HCM Lane LOS	B	-	-	A	A	
HCM 95th %tile O(veh)	0.2	-	-	0	-	

6: 80th St & Pecos Rd
2022 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	72.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	201	47	16	294	332	16
Future Vol, veh/h	201	47	16	294	332	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	218	78	27	320	553	27
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	296	0	592	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	374	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1265	-	~ 469	822
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	696	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1265	-	~ 457	822
Mov Cap-2 Maneuver	-	-	-	-	~ 457	-
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	678	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		152.4	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	467	-	-	1265	-	
HCM Lane V/C Ratio	1.242	-	-	0.021	-	
HCM Control Delay (s)	152.4	-	-	7.9	0	
HCM Lane LOS	F	-	-	A	A	
HCM 95th %tile Q(veh)	23.4	-	-	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

9: Sossaman Rd & Pecos Rd

2022 Background plus ALA without Site - AM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	205	169	17	200	42	350	271	40	41	117	8
Future Volume (veh/h)	33	205	169	17	200	42	350	271	40	41	117	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	223	184	18	217	46	380	295	43	45	127	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	373	316	233	333	282	755	729	106	543	624	44
Arrive On Green	0.05	0.20	0.20	0.03	0.18	0.18	0.16	0.46	0.46	0.06	0.36	0.36
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1596	233	1781	1726	122
Grp Volume(v), veh/h	36	223	184	18	217	46	380	0	338	45	0	136
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1828	1781	0	1848
Q Serve(g_s), s	1.3	9.1	8.9	0.7	9.1	2.1	10.5	0.0	10.4	1.3	0.0	4.3
Cycle Q Clear(g_c), s	1.3	9.1	8.9	0.7	9.1	2.1	10.5	0.0	10.4	1.3	0.0	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.07
Lane Grp Cap(c), veh/h	260	373	316	233	333	282	755	0	835	543	0	668
V/C Ratio(X)	0.14	0.60	0.58	0.08	0.65	0.16	0.50	0.00	0.40	0.08	0.00	0.20
Avail Cap(c_a), veh/h	396	633	536	407	633	536	919	0	835	666	0	668
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	30.7	30.5	26.8	32.2	29.3	11.5	0.0	15.2	14.4	0.0	18.6
Incr Delay (d2), s/veh	0.2	1.5	1.7	0.1	2.2	0.3	0.5	0.0	1.5	0.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.2	3.4	0.3	4.2	0.8	3.9	0.0	4.4	0.5	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	32.2	32.2	27.0	34.4	29.6	12.1	0.0	16.7	14.5	0.0	19.2
LnGrp LOS	C	C	C	C	C	C	B	A	B	B	A	B
Approach Vol, veh/h	443			281			718			181		
Approach Delay, s/veh	31.7			33.1			14.2			18.1		
Approach LOS	C			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	45.0	6.8	23.3	17.3	36.9	8.6	21.5				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	3.3	12.4	2.7	11.1	12.5	6.3	3.3	11.1				
Green Ext Time (p_c), s	0.0	2.1	0.0	1.8	0.8	0.7	0.0	1.2				
Intersection Summary												
HCM 6th Ctrl Delay	22.7											
HCM 6th LOS	C											

9: Sossaman Rd & Pecos Rd

2022 Background plus ALA without Site - AM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	223	184	18	217	46	380	338	45	136
v/c Ratio	0.11	0.52	0.36	0.05	0.57	0.10	0.48	0.37	0.08	0.22
Control Delay	21.8	35.8	7.3	21.1	39.7	0.5	12.9	18.5	11.2	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	35.8	7.3	21.1	39.7	0.5	12.9	18.5	11.2	25.2
Queue Length 50th (ft)	14	101	0	7	119	0	109	132	10	55
Queue Length 95th (ft)	36	204	54	22	199	0	204	235	30	120
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	380	619	649	405	619	629	824	907	606	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.36	0.28	0.04	0.35	0.07	0.46	0.37	0.07	0.22
Intersection Summary										

1: Sossaman Rd & Germann Rd
2022 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	9.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	93	86	357	237	165	461
Future Vol, veh/h	93	86	357	237	165	461
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	93	388	258	179	501
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1247	388	0	0	388	0
Stage 1	388	-	-	-	-	-
Stage 2	859	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	192	660	-	-	1170	-
Stage 1	686	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	151	660	-	-	1170	-
Mov Cap-2 Maneuver	151	-	-	-	-	-
Stage 1	686	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	62.8	0		2.3		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	240	1170	-	
HCM Lane V/C Ratio	-	-	0.811	0.153	-	
HCM Control Delay (s)	-	-	62.8	8.6	0	
HCM Lane LOS	-	-	F	A	A	
HCM 95th %tile Q(veh)	-	-	6.2	0.5	-	

2: 80th Street/80th St & Germann Rd
2022 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	15.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	12	299	93	15	146	132	28	63	20	65	47	5
Future Vol, veh/h	12	299	93	15	146	132	28	63	20	65	47	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	13	498	101	16	243	220	30	68	22	108	51	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	463	0	0	599	0	0	988	1070	549	1005	1010	353
Stage 1	-	-	-	-	-	-	575	575	-	385	385	-
Stage 2	-	-	-	-	-	-	413	495	-	620	625	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1098	-	-	978	-	-	226	221	535	220	240	691
Stage 1	-	-	-	-	-	-	503	503	-	638	611	-
Stage 2	-	-	-	-	-	-	616	546	-	476	477	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1098	-	-	978	-	-	180	212	535	154	230	691
Mov Cap-2 Maneuver	-	-	-	-	-	-	180	212	-	154	230	-
Stage 1	-	-	-	-	-	-	494	494	-	627	597	-
Stage 2	-	-	-	-	-	-	546	533	-	386	468	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			37.8			103.5		
HCM LOS							E			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	226	1098	-	-	978	-	-	177				
HCM Lane V/C Ratio	0.534	0.012	-	-	0.017	-	-	0.931				
HCM Control Delay (s)	37.8	8.3	0	-	8.7	0	-	103.5				
HCM Lane LOS	E	A	A	-	A	A	-	F				
HCM 95th %tile O(veh)	2.8	0	-	-	0.1	-	-	7.1				

3: Extg West Driveway & Germann Rd
2022 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	336	83	54	335	0	0
Future Vol, veh/h	336	83	54	335	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	365	138	90	364	0	0

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	503
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.13
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.219
Pot Cap-1 Maneuver	-	-	1060
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1060
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1060	-
HCM Lane V/C Ratio	-	-	-	0.085	-
HCM Control Delay (s)	0	-	-	8.7	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0.3	-

4: Extg East Driveway & Germann Rd
2022 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	6.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	
Traffic Vol, veh/h	336	0	0	327	62	152
Future Vol, veh/h	336	0	0	327	62	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	365	0	0	545	103	253
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	-	-	-	910	183
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	545	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	289	829
Stage 1	-	0	0	-	674	-
Stage 2	-	0	0	-	580	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	289	829
Mov Cap-2 Maneuver	-	-	-	-	289	-
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	580	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		23.9		
HCM LOS				C		
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	538	-	-			
HCM Lane V/C Ratio	0.663	-	-			
HCM Control Delay (s)	23.9	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile Q(veh)	4.9	-	-			

5: Hawes Rd & Germann Rd
2022 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	398	9	0	290	14	1
Future Vol, veh/h	398	9	0	290	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	10	0	315	15	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	443	0	748	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	315	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1117	-	380	623
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	740	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1117	-	380	623
Mov Cap-2 Maneuver	-	-	-	-	380	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	740	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		14.6	
HCM LOS	B					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	390	-	-	1117	-	
HCM Lane V/C Ratio	0.042	-	-	-	-	
HCM Control Delay (s)	14.6	-	-	0	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile O(veh)	0.1	-	-	0	-	

6: 80th St & Pecos Rd
 2022 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection

Int Delay, s/veh 7.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	280	102	9	260	152	34
Future Vol, veh/h	280	102	9	260	152	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	304	170	15	283	253	57

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	474
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1088
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1088
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	25.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	481	-	-	1088	-
HCM Lane V/C Ratio	0.644	-	-	0.014	-
HCM Control Delay (s)	25.1	-	-	8.4	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	4.5	-	-	0	-

9: Sossaman Rd & Pecos Rd

2022 Background plus ALA without Site - PM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	202	268	63	194	28	212	152	43	87	506	41
Future Volume (veh/h)	28	202	268	63	194	28	212	152	43	87	506	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	220	291	68	211	30	230	165	47	95	550	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	323	404	342	302	450	381	337	575	164	605	661	54
Arrive On Green	0.05	0.22	0.22	0.07	0.24	0.24	0.10	0.41	0.41	0.08	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1400	399	1781	1706	140
Grp Volume(v), veh/h	30	220	291	68	211	30	230	0	212	95	0	595
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1799	1781	0	1845
Q Serve(g_s), s	1.2	9.8	16.5	2.6	9.0	1.4	7.1	0.0	7.4	2.8	0.0	27.3
Cycle Q Clear(g_c), s	1.2	9.8	16.5	2.6	9.0	1.4	7.1	0.0	7.4	2.8	0.0	27.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.08
Lane Grp Cap(c), veh/h	323	404	342	302	450	381	337	0	739	605	0	715
V/C Ratio(X)	0.09	0.55	0.85	0.23	0.47	0.08	0.68	0.00	0.29	0.16	0.00	0.83
Avail Cap(c_a), veh/h	450	569	482	385	569	482	555	0	739	675	0	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	32.6	35.3	25.1	30.5	27.5	19.5	0.0	18.4	14.3	0.0	25.9
Incr Delay (d2), s/veh	0.1	1.1	9.9	0.4	0.8	0.1	2.4	0.0	1.0	0.1	0.0	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.5	7.2	1.1	4.1	0.5	2.9	0.0	3.2	1.1	0.0	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	33.8	45.2	25.5	31.2	27.6	21.9	0.0	19.4	14.4	0.0	36.9
LnGrp LOS	C	C	D	C	C	C	C	A	B	B	A	D
Approach Vol, veh/h	541			309			442			690		
Approach Delay, s/veh	39.5			29.6			20.7			33.8		
Approach LOS	D			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.3	45.0	10.6	26.7	13.5	42.8	8.3	29.0				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	4.8	9.4	4.6	18.5	9.1	29.3	3.2	11.0				
Green Ext Time (p_c), s	0.1	1.3	0.1	1.7	0.5	0.0	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	31.8											
HCM 6th LOS	C											

9: Sossaman Rd & Pecos Rd

2022 Background plus ALA without Site - PM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	220	291	68	211	30	230	212	95	595
v/c Ratio	0.08	0.59	0.53	0.19	0.48	0.06	0.67	0.27	0.15	0.87
Control Delay	20.7	41.3	7.9	22.0	36.0	0.2	24.1	19.5	11.7	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.7	41.3	7.9	22.0	36.0	0.2	24.1	19.5	11.7	44.5
Queue Length 50th (ft)	12	121	0	27	115	0	61	74	23	312
Queue Length 95th (ft)	31	205	67	57	190	0	155	156	57	#667
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	438	597	705	391	597	612	503	798	681	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.37	0.41	0.17	0.35	0.05	0.46	0.27	0.14	0.87

Intersection Summary

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

Queue shown is maximum after two cycles.

1: Sossaman Rd & Germann Rd
2022 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	58.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	102	135	891	325	92	534
Future Vol, veh/h	102	135	891	325	92	534
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	111	147	968	353	100	580
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1748	968	0	0	968	0
Stage 1	968	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 95	308	-	-	712	-
Stage 1	368	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 75	308	-	-	712	-
Mov Cap-2 Maneuver	~ 75	-	-	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	358	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	510.6	0		1.6		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	132	712	-	
HCM Lane V/C Ratio	-	-	1.952	0.14	-	
HCM Control Delay (s)	-	-	510.6	10.9	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q(veh)	-	-	20.4	0.5	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2: 80th Street/80th St & Germann Rd
2022 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	101.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Traffic Vol, veh/h	180	243	62	9	176	341	36	104	59	27	24	3
Future Vol, veh/h	180	243	62	9	176	341	36	104	59	27	24	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	250	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	196	405	67	10	293	568	39	113	64	45	26	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	861	0	0	472	0	0	1443	1712	439	1232	1177	293
Stage 1	-	-	-	-	-	-	831	831	-	313	313	-
Stage 2	-	-	-	-	-	-	612	881	-	919	864	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	781	-	-	1090	-	-	110	~ 90	618	154	191	746
Stage 1	-	-	-	-	-	-	364	384	-	698	657	-
Stage 2	-	-	-	-	-	-	480	365	-	325	371	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	781	-	-	1090	-	-	67	~ 58	618	-	123	746
Mov Cap-2 Maneuver	-	-	-	-	-	-	67	~ 58	-	-	123	-
Stage 1	-	-	-	-	-	-	239	252	-	458	644	-
Stage 2	-	-	-	-	-	-	449	358	-	105	243	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.3	0.1	\$ 850.9	
HCM LOS			F	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	82	781	-	-	1090	-	-	-	136
HCM Lane V/C Ratio	2.638	0.251	-	-	0.009	-	-	-	0.216
HCM Control Delay (s)	\$ 850.9	11.1	0	-	8.3	0	-	-	38.6
HCM Lane LOS	F	B	A	-	A	A	-	-	E
HCM 95th %tile Q(veh)	20.7	1	-	-	0	-	-	-	0.8

Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined							*: All major volume in platoon			

3: Extg West Driveway & Germann Rd
2022 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	242	83	35	527	0	0
Future Vol, veh/h	242	83	35	527	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	263	138	58	573	0	0
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	401	0	952	132
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	689	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1156	-	272	894
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	497	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1156	-	258	894
Mov Cap-2 Maneuver	-	-	-	-	258	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	472	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0.8		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1156	-	
HCM Lane V/C Ratio	-	-	-	0.05	-	
HCM Control Delay (s)	0	-	-	8.3	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.2	-	

4: Extg East Driveway & Germann Rd
2022 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑↓	
Traffic Vol, veh/h	242	0	0	519	43	118
Future Vol, veh/h	242	0	0	519	43	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	263	0	0	865	72	197
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1128	132
Stage 1	-	-	-	-	263	-
Stage 2	-	-	-	-	865	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	212	894
Stage 1	-	0	0	-	758	-
Stage 2	-	0	0	-	411	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	212	894
Mov Cap-2 Maneuver	-	-	-	-	212	-
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	411	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		21.5	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	481	-	-			
HCM Lane V/C Ratio	0.558	-	-			
HCM Control Delay (s)	21.5	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile O(veh)	3.4	-	-			

5: Hawes Rd & Germann Rd
2022 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↗	
Traffic Vol, veh/h	307	13	1	448	23	1
Future Vol, veh/h	307	13	1	448	23	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	334	14	1	487	25	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	348	0	823	334
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1211	-	343	708
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	616	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1211	-	343	708
Mov Cap-2 Maneuver	-	-	-	-	343	-
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	615	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		16.1	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	351	-	-	1211	-	
HCM Lane V/C Ratio	0.074	-	-	0.001	-	
HCM Control Delay (s)	16.1	-	-	8	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile O(veh)	0.2	-	-	0	-	

6: 80th St & Pecos Rd
2022 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	1010.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↗	
Traffic Vol, veh/h	201	203	120	294	609	200
Future Vol, veh/h	201	203	120	294	609	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	218	338	200	320	1015	333
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	556	0	938	218
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	720	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1015	-	~ 293	822
Stage 1	-	-	-	-	~ 818	-
Stage 2	-	-	-	-	~ 482	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1015	-	~ 223	822
Mov Cap-2 Maneuver	-	-	-	-	~ 223	-
Stage 1	-	-	-	-	~ 818	-
Stage 2	-	-	-	-	~ 366	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.6		\$ 1815.4	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	272	-	-	1015	-	
HCM Lane V/C Ratio	4.957	-	-	0.197	-	
HCM Control Delay (s)	\$ 1815.4	-	-	9.4	0	
HCM Lane LOS	F	-	-	A	A	
HCM 95th %tile Q(veh)	138.2	-	-	0.7	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

7: 80th St & Driveway A
2022 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	10.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	461	365	260	260	55
Future Vol, veh/h	0	461	365	260	260	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	200	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	501	397	283	283	60
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1023	397	0	0	680	0
Stage 1	397	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	261	652	-	-	912	-
Stage 1	679	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	180	652	-	-	912	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	679	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	26.4	0	8.8			
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	-	652	912	-	
HCM Lane V/C Ratio	-	-	0.769	0.31	-	
HCM Control Delay (s)	-	-	0	26.4	10.7	-
HCM Lane LOS	-	-	A	D	B	-
HCM 95th %tile Q(veh)	-	-	-	7.2	1.3	-

9: Sossaman Rd & Pecos Rd

2022 Background plus ALA with Site - AM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	361	169	155	338	42	350	271	40	41	117	8
Future Volume (veh/h)	33	361	169	155	338	42	350	271	40	41	117	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	392	184	168	367	46	380	295	43	45	127	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	262	448	380	263	519	439	665	639	93	452	501	35
Arrive On Green	0.05	0.24	0.24	0.09	0.28	0.28	0.17	0.40	0.40	0.06	0.29	0.29
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1596	233	1781	1726	122
Grp Volume(v), veh/h	36	392	184	168	367	46	380	0	338	45	0	136
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1828	1781	0	1848
Q Serve(g_s), s	1.4	19.8	9.8	6.7	17.3	2.1	13.9	0.0	13.4	1.7	0.0	5.5
Cycle Q Clear(g_c), s	1.4	19.8	9.8	6.7	17.3	2.1	13.9	0.0	13.4	1.7	0.0	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.07
Lane Grp Cap(c), veh/h	262	448	380	263	519	439	665	0	732	452	0	536
V/C Ratio(X)	0.14	0.87	0.48	0.64	0.71	0.10	0.57	0.00	0.46	0.10	0.00	0.25
Avail Cap(c_a), veh/h	371	543	460	305	543	460	747	0	732	548	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.2	35.9	32.1	26.1	31.9	26.4	17.4	0.0	21.7	21.5	0.0	26.7
Incr Delay (d2), s/veh	0.2	12.9	1.0	3.5	4.0	0.1	0.8	0.0	2.1	0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.5	3.8	3.0	8.3	0.8	5.6	0.0	6.0	0.7	0.0	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	48.8	33.1	29.6	35.9	26.5	18.2	0.0	23.7	21.6	0.0	27.8
LnGrp LOS	C	D	C	C	D	C	B	A	C	C	A	C
Approach Vol, veh/h	612			581			718			181		
Approach Delay, s/veh	42.8			33.4			20.8			26.3		
Approach LOS	D			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.7	45.8	12.7	30.0	20.5	35.0	9.0	33.7				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	3.7	15.4	8.7	21.8	15.9	7.5	3.4	19.3				
Green Ext Time (p_c), s	0.0	2.1	0.1	1.7	0.6	0.7	0.0	1.6				
Intersection Summary												
HCM 6th Ctrl Delay	31.2											
HCM 6th LOS	C											

9: Sossaman Rd & Pecos Rd
2022 Background plus ALA with Site - AM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	392	184	168	367	46	380	338	45	136
v/c Ratio	0.11	0.87	0.35	0.60	0.63	0.08	0.55	0.43	0.10	0.27
Control Delay	20.1	58.0	6.8	30.2	38.1	0.2	19.5	25.0	15.4	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	58.0	6.8	30.2	38.1	0.2	19.5	25.0	15.4	32.6
Queue Length 50th (ft)	15	260	0	74	230	0	161	176	15	75
Queue Length 95th (ft)	35	#410	54	123	339	0	237	265	34	130
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	386	512	568	291	583	601	707	786	498	509
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.77	0.32	0.58	0.63	0.08	0.54	0.43	0.09	0.27

Intersection Summary

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

1: Sossaman Rd & Germann Rd
2022 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	25.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	93	86	429	319	165	695
Future Vol, veh/h	93	86	429	319	165	695
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	101	93	466	347	179	755
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1579	466	0	0	466	0
Stage 1	466	-	-	-	-	-
Stage 2	1113	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	120	597	-	-	1095	-
Stage 1	632	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 86	597	-	-	1095	-
Mov Cap-2 Maneuver	~ 86	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	247.3		0		1.7	
HCM LOS	F					
Minor Lane/Major Mvmt			NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)			-	- 146	1095	-
HCM Lane V/C Ratio			-	- 1.333	0.164	-
HCM Control Delay (s)			-	- 247.3	8.9	0
HCM Lane LOS			-	- F	A	A
HCM 95th %tile Q(veh)			-	- 12.1	0.6	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2: 80th Street/80th St & Germann Rd
2022 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	25.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↗		↕		↗	↗	
Traffic Vol, veh/h	94	299	93	15	146	187	28	63	20	65	47	5
Future Vol, veh/h	94	299	93	15	146	187	28	63	20	65	47	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	250	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	102	498	101	16	243	312	30	68	22	108	51	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	555	0	0	599	0	0	1212	1340	549	1073	1078	243
Stage 1	-	-	-	-	-	-	753	753	-	275	275	-
Stage 2	-	-	-	-	-	-	459	587	-	798	803	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1015	-	-	978	-	-	159	153	535	198	219	796
Stage 1	-	-	-	-	-	-	402	417	-	731	683	-
Stage 2	-	-	-	-	-	-	582	497	-	380	396	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1015	-	-	978	-	-	108	126	535	~ 95	181	796
Mov Cap-2 Maneuver	-	-	-	-	-	-	108	126	-	~ 95	181	-
Stage 1	-	-	-	-	-	-	340	353	-	619	666	-
Stage 2	-	-	-	-	-	-	520	485	-	249	335	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.3			0.2			106.1			153.4		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	139	1015	-	-	978	-	-	95	196			
HCM Lane V/C Ratio	0.868	0.101	-	-	0.017	-	-	1.14	0.288			
HCM Control Delay (s)	106.1	8.9	0	-	8.7	0	-	217.5	30.6			
HCM Lane LOS	F	A	A	-	A	A	-	F	D			
HCM 95th %tile Q(veh)	5.7	0.3	-	-	0.1	-	-	7.3	1.1			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

3: Extg West Driveway & Germann Rd
2022 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑	↑↑	
Traffic Vol, veh/h	336	83	54	390	0	0
Future Vol, veh/h	336	83	54	390	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	365	138	90	424	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	503	0	969	183
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	604	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1060	-	266	829
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	545	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1060	-	243	829
Mov Cap-2 Maneuver	-	-	-	-	243	-
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	499	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.5		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1060	-	
HCM Lane V/C Ratio	-	-	-	0.085	-	
HCM Control Delay (s)	0	-	-	8.7	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.3	-	

4: Extg East Driveway & Germann Rd
2022 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	7.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑↓	
Traffic Vol, veh/h	336	0	0	382	62	152
Future Vol, veh/h	336	0	0	382	62	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	365	0	0	637	103	253
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1002	183
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	637	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	253	829
Stage 1	-	0	0	-	674	-
Stage 2	-	0	0	-	526	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	253	829
Mov Cap-2 Maneuver	-	-	-	-	253	-
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	526	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		28.1	
HCM LOS					D	
Minor Lane/Major Mvmt	NBLn1		EBT	WBT		
Capacity (veh/h)	500		-	-		
HCM Lane V/C Ratio	0.713		-	-		
HCM Control Delay (s)	28.1		-	-		
HCM Lane LOS	D		-	-		
HCM 95th %tile O(veh)	5.7		-	-		

5: Hawes Rd & Germann Rd
2022 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	398	9	0	345	14	1
Future Vol, veh/h	398	9	0	345	14	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	433	10	0	375	15	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	443	0	808	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	375	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1117	-	350	623
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	695	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1117	-	350	623
Mov Cap-2 Maneuver	-	-	-	-	350	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	695	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		15.4	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	361	-	-	1117	-	
HCM Lane V/C Ratio	0.045	-	-	-	-	
HCM Control Delay (s)	15.4	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile O(veh)	0.1	-	-	0	-	

6: 80th St & Pecos Rd
2022 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	268.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	280	184	64	260	344	162
Future Vol, veh/h	280	184	64	260	344	162
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	304	307	107	283	573	270
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	611	0	801	304
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	497	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	968	-	~ 354	736
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	611	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	968	-	~ 308	736
Mov Cap-2 Maneuver	-	-	-	-	~ 308	-
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	~ 531	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.5		\$ 585.2	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	378	-	-	968	-	
HCM Lane V/C Ratio	2.231	-	-	0.11	-	
HCM Control Delay (s)	\$ 585.2	-	-	9.2	0	
HCM Lane LOS	F	-	-	A	A	
HCM 95th %tile Q(veh)	63.2	-	-	0.4	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

7: 80th St & Driveway A
2022 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	320	207	137	137	118
Future Vol, veh/h	0	320	207	137	137	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	200	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	348	225	149	149	128

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	651	225	0	0	374	0
Stage 1	225	-	-	-	-	-
Stage 2	426	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	433	814	-	-	1184	-
Stage 1	812	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	378	814	-	-	1184	-
Mov Cap-2 Maneuver	378	-	-	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	4.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	814	1184
HCM Lane V/C Ratio	-	-	0.427	0.126
HCM Control Delay (s)	-	-	0	12.7
HCM Lane LOS	-	-	A	B
HCM 95th %tile Q(veh)	-	-	2.2	0.4

9: Sossaman Rd & Pecos Rd

2022 Background plus ALA with Site - PM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	324	284	159	367	43	243	167	43	95	514	41
Future Volume (veh/h)	28	324	284	159	367	43	243	167	43	95	514	41
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	352	309	173	399	47	264	182	47	103	559	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	227	428	362	274	513	435	308	560	145	557	601	48
Arrive On Green	0.05	0.23	0.23	0.09	0.27	0.27	0.12	0.39	0.39	0.08	0.35	0.35
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1434	370	1781	1708	138
Grp Volume(v), veh/h	30	352	309	173	399	47	264	0	229	103	0	604
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1804	1781	0	1846
Q Serve(g_s), s	1.2	17.6	18.4	7.0	19.4	2.2	8.8	0.0	8.7	3.5	0.0	31.1
Cycle Q Clear(g_c), s	1.2	17.6	18.4	7.0	19.4	2.2	8.8	0.0	8.7	3.5	0.0	31.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.21	1.00		0.07
Lane Grp Cap(c), veh/h	227	428	362	274	513	435	308	0	705	557	0	649
V/C Ratio(X)	0.13	0.82	0.85	0.63	0.78	0.11	0.86	0.00	0.33	0.18	0.00	0.93
Avail Cap(c_a), veh/h	345	541	458	310	541	458	482	0	705	620	0	649
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.6	36.1	36.4	26.3	33.0	26.7	21.9	0.0	21.0	17.2	0.0	30.8
Incr Delay (d2), s/veh	0.3	8.1	11.9	3.4	6.7	0.1	8.9	0.0	1.2	0.2	0.0	21.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	8.9	8.2	3.2	9.6	0.8	4.2	0.0	3.9	1.4	0.0	17.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	44.2	48.3	29.6	39.7	26.8	30.8	0.0	22.2	17.4	0.0	52.7
LnGrp LOS	C	D	D	C	D	C	C	A	C	B	A	D
Approach Vol, veh/h	691			619			493			707		
Approach Delay, s/veh	45.3			35.9			26.8			47.5		
Approach LOS	D			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.5	45.0	13.0	29.0	15.4	41.2	8.5	33.6				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	5.5	10.7	9.0	20.4	10.8	33.1	3.2	21.4				
Green Ext Time (p_c), s	0.1	1.4	0.1	2.1	0.6	0.0	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay	40.0											
HCM 6th LOS	D											

9: Sossaman Rd & Pecos Rd
2022 Background plus ALA with Site - PM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	30	352	309	173	399	47	264	229	103	604
v/c Ratio	0.10	0.80	0.51	0.55	0.69	0.08	0.77	0.32	0.19	1.08
Control Delay	19.8	51.6	6.9	27.6	39.9	0.3	37.4	24.2	15.4	97.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	51.6	6.9	27.6	39.9	0.3	37.4	24.2	15.4	97.0
Queue Length 50th (ft)	12	221	0	74	248	0	117	105	35	~464
Queue Length 95th (ft)	31	335	67	127	371	0	210	179	66	#759
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	366	528	670	323	581	599	434	717	569	560
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.67	0.46	0.54	0.69	0.08	0.61	0.32	0.18	1.08

Intersection Summary

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

APPENDIX F: Future 2030 Level-of-Service Analysis

1: Sossaman Rd & Germann Rd
2030 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	85.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	128	170	848	212	116	351
Future Vol, veh/h	128	170	848	212	116	351
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	139	185	922	230	126	382
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	1556	922	0	0	922	0
Stage 1	922	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 124	327	-	-	741	-
Stage 1	387	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 97	327	-	-	741	-
Mov Cap-2 Maneuver	~ 97	-	-	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	415	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	517.7		0		2.7	
HCM LOS	F					
Minor Lane/Major Mvmt	NBT		NBRWBLn1		SBL	SBT
Capacity (veh/h)	-		- 162		741	-
HCM Lane V/C Ratio	-		- 1.999		0.17	-
HCM Control Delay (s)	-		- 517.7		10.9	0
HCM Lane LOS	-		- F		B	A
HCM 95th %tile Q(veh)	-		- 25.1		0.6	-
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2: 80th Street/80th St & Germann Rd
2030 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	68.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	304	78	12	221	297	45	130	74	34	30	4
Future Vol, veh/h	30	304	78	12	221	297	45	130	74	34	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	507	85	13	368	495	49	141	80	57	33	4
Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	863	0	0	592	0	0	1276	1505	550	1368	1300	616
Stage 1	-	-	-	-	-	-	616	616	-	642	642	-
Stage 2	-	-	-	-	-	-	660	889	-	726	658	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	779	-	-	984	-	-	144 ~ 121	535	124	161	491	
Stage 1	-	-	-	-	-	-	478	482	-	463	469	-
Stage 2	-	-	-	-	-	-	452	361	-	416	461	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	779	-	-	984	-	-	110 ~ 110	535	-	147	491	
Mov Cap-2 Maneuver	-	-	-	-	-	-	110 ~ 110	-	-	147	-	
Stage 1	-	-	-	-	-	-	447	451	-	433	456	-
Stage 2	-	-	-	-	-	-	404	351	-	227	431	-
Approach	EB		WB		NB		SB					
HCM Control Delay, s	0.5		0.1		\$ 473.5							
HCM LOS					F		-					
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	144	779	-	-	984	-	-	-				
HCM Lane V/C Ratio	1.88	0.042	-	-	0.013	-	-	-				
HCM Control Delay (s)	\$ 473.5	9.8	0	-	8.7	0	-	-				
HCM Lane LOS	F	A	A	-	A	A	-	-				
HCM 95th %tile Q(veh)	20.7	0.1	-	-	0	-	-	-				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

3: Extg West Driveway & Germann Rd
2030 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	303	83	35	530	0	0
Future Vol, veh/h	303	83	35	530	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	329	138	58	576	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	467	0	1021	165
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	692	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1093	-	247	851
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	496	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1093	-	234	851
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	470	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.8		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1093	-	
HCM Lane V/C Ratio	-	-	-	0.053	-	
HCM Control Delay (s)	0	-	-	8.5	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.2	-	

4: Extg East Driveway & Germann Rd
2030 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	4.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑↓	
Traffic Vol, veh/h	303	0	0	520	43	118
Future Vol, veh/h	303	0	0	520	43	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	329	0	0	867	72	197
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1196	165
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	867	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	192	851
Stage 1	-	0	0	-	702	-
Stage 2	-	0	0	-	410	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	192	851
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	410	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		24.7	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	444	-	-			
HCM Lane V/C Ratio	0.604	-	-			
HCM Control Delay (s)	24.7	-	-			
HCM Lane LOS	C	-	-			
HCM 95th %tile O(veh)	3.9	-	-			

5: Hawes Rd & Germann Rd
2030 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	384	16	1	432	29	1
Future Vol, veh/h	384	16	1	432	29	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	417	17	1	470	32	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	434	0	889	417
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	472	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1126	-	314	636
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1126	-	314	636
Mov Cap-2 Maneuver	-	-	-	-	314	-
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	627	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		17.6	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1		EBT	EBR	WBL	WBT
Capacity (veh/h)	319		-	-	1126	-
HCM Lane V/C Ratio	0.102		-	-	0.001	-
HCM Control Delay (s)	17.6		-	-	8.2	0
HCM Lane LOS	C		-	-	A	A
HCM 95th %tile O(veh)	0.3		-	-	0	-

6: 80th St & Pecos Rd
2030 Background plus ALA without Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	188.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	220	59	20	349	416	20
Future Vol, veh/h	220	59	20	349	416	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	239	98	33	379	693	33
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	337	0	684	239
Stage 1	-	-	-	-	239	-
Stage 2	-	-	-	-	445	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1222	-	~ 414	800
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	~ 646	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1222	-	~ 400	800
Mov Cap-2 Maneuver	-	-	-	-	~ 400	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	~ 624	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		\$ 382.4	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	409	-	-	1222	-	
HCM Lane V/C Ratio	1.777	-	-	0.027	-	
HCM Control Delay (s)	\$ 382.4	-	-	8	0	
HCM Lane LOS	F	-	-	A	A	
HCM 95th %tile Q(veh)	45.7	-	-	0.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

9: Sossaman Rd & Pecos Rd

2030 Background plus ALA without Site - AM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	113	159	22	179	38	426	340	53	22	122	11
Future Volume (veh/h)	43	113	159	22	179	38	426	340	53	22	122	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	123	173	24	195	41	463	370	58	24	133	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	283	365	310	306	324	275	763	759	119	464	557	50
Arrive On Green	0.06	0.20	0.20	0.04	0.17	0.17	0.19	0.48	0.48	0.04	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1578	247	1781	1690	153
Grp Volume(v), veh/h	47	123	173	24	195	41	463	0	428	24	0	145
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1826	1781	0	1843
Q Serve(g_s), s	1.8	4.9	8.5	0.9	8.3	1.9	13.8	0.0	13.8	0.7	0.0	5.0
Cycle Q Clear(g_c), s	1.8	4.9	8.5	0.9	8.3	1.9	13.8	0.0	13.8	0.7	0.0	5.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.14	1.00		0.08
Lane Grp Cap(c), veh/h	283	365	310	306	324	275	763	0	878	464	0	607
V/C Ratio(X)	0.17	0.34	0.56	0.08	0.60	0.15	0.61	0.00	0.49	0.05	0.00	0.24
Avail Cap(c_a), veh/h	398	616	522	460	616	522	854	0	878	619	0	607
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	30.0	31.4	27.2	33.0	30.3	12.6	0.0	15.2	17.4	0.0	21.1
Incr Delay (d2), s/veh	0.3	0.5	1.6	0.1	1.8	0.2	1.0	0.0	1.9	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.2	3.3	0.4	3.9	0.7	5.2	0.0	5.8	0.3	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	30.5	33.0	27.3	34.8	30.6	13.6	0.0	17.2	17.5	0.0	22.0
LnGrp LOS	C	C	C	C	C	C	B	A	B	B	A	C
Approach Vol, veh/h	343			260			891			169		
Approach Delay, s/veh	31.2			33.4			15.3			21.4		
Approach LOS	C			C			B			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.5	48.1	7.5	23.4	20.6	35.0	9.4	21.5				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	2.7	15.8	2.9	10.5	15.8	7.0	3.8	10.3				
Green Ext Time (p_c), s	0.0	2.8	0.0	1.1	0.8	0.7	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay	22.0											
HCM 6th LOS	C											

9: Sossaman Rd & Pecos Rd

2030 Background plus ALA without Site - AM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	123	173	24	195	41	463	428	24	145
v/c Ratio	0.15	0.31	0.37	0.06	0.57	0.10	0.55	0.43	0.05	0.25
Control Delay	23.2	33.6	7.7	22.1	42.2	0.5	13.2	17.0	10.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	33.6	7.7	22.1	42.2	0.5	13.2	17.0	10.7	25.7
Queue Length 50th (ft)	19	55	0	10	110	0	137	129	5	63
Queue Length 95th (ft)	44	119	53	27	183	0	251	302	18	123
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	359	589	619	414	589	606	839	999	545	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.21	0.28	0.06	0.33	0.07	0.55	0.43	0.04	0.25
Intersection Summary										

1: Sossaman Rd & Germann Rd
2030 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	52.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T	T		T
Traffic Vol, veh/h	117	108	448	297	207	578
Future Vol, veh/h	117	108	448	297	207	578
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	117	487	323	225	628

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1565	487	0
Stage 1	487	-	-
Stage 2	1078	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	~ 123	581	-
Stage 1	618	-	-
Stage 2	327	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	~ 84	581	-
Mov Cap-2 Maneuver	~ 84	-	-
Stage 1	618	-	-
Stage 2	222	-	-

Approach	WB	NB	SB
HCM Control Delay, s	401.9	0	2.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	143	1076
HCM Lane V/C Ratio	-	-	1.71	0.209
HCM Control Delay (s)	-	-	401.9	9.2
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	17.8	0.8

Notes			
-: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

2: 80th Street/80th St & Germann Rd
2030 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	102.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	375	117	18	183	166	36	79	25	82	59	7
Future Vol, veh/h	14	375	117	18	183	166	36	79	25	82	59	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	60	92	92	60	60	92	92	92	60	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	625	127	20	305	277	39	86	27	137	64	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	582	0	0	752	0	0	1239	1341	689	1259	1266	444
Stage 1	-	-	-	-	-	-	719	719	-	484	484	-
Stage 2	-	-	-	-	-	-	520	622	-	775	782	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	992	-	-	858	-	-	152	152	446	147	169	614
Stage 1	-	-	-	-	-	-	420	433	-	564	552	-
Stage 2	-	-	-	-	-	-	539	479	-	391	405	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	992	-	-	858	-	-	98	143	446	~ 69	159	614
Mov Cap-2 Maneuver	-	-	-	-	-	-	98	143	-	~ 69	159	-
Stage 1	-	-	-	-	-	-	409	421	-	549	532	-
Stage 2	-	-	-	-	-	-	451	462	-	284	394	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			155.4			\$ 738.8		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	143	992	-	-	858	-	-	87				
HCM Lane V/C Ratio	1.064	0.015	-	-	0.023	-	-	2.395				
HCM Control Delay (s)	155.4	8.7	0	-	9.3	0	-	\$ 738.8				
HCM Lane LOS	F	A	A	-	A	A	-	F				
HCM 95th %tile Q(veh)	8.1	0	-	-	0.1	-	-	19.2				
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

3: Extg West Driveway & Germann Rd
2030 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑	↘↗	
Traffic Vol, veh/h	421	83	54	420	0	0
Future Vol, veh/h	421	83	54	420	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	458	138	90	457	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	596	0	1095	229
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	637	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	978	-	222	774
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	526	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	978	-	202	774
Mov Cap-2 Maneuver	-	-	-	-	202	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	478	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.5		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	978	-	
HCM Lane V/C Ratio	-	-	-	0.092	-	
HCM Control Delay (s)	0	-	-	9.1	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.3	-	

4: Extg East Driveway & Germann Rd
2030 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	10					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↘	
Traffic Vol, veh/h	421	0	0	409	62	152
Future Vol, veh/h	421	0	0	409	62	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	458	0	0	682	103	253
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	-	-	-	1140	229
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	682	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	208	774
Stage 1	-	0	0	-	604	-
Stage 2	-	0	0	-	501	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	208	774
Mov Cap-2 Maneuver	-	-	-	-	208	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	501	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		41.9		
HCM LOS	E					
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	433	-	-			
HCM Lane V/C Ratio	0.824	-	-			
HCM Control Delay (s)	41.9	-	-			
HCM Lane LOS	E	-	-			
HCM 95th %tile O(veh)	7.7	-	-			

5: Hawes Rd & Germann Rd
2030 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	499	12	0	363	17	1
Future Vol, veh/h	499	12	0	363	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	542	13	0	395	18	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	555	0	937	542
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	395	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1015	-	294	540
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	681	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1015	-	294	540
Mov Cap-2 Maneuver	-	-	-	-	294	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	681	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		17.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	302	-	-	1015	-	
HCM Lane V/C Ratio	0.065	-	-	-	-	
HCM Control Delay (s)	17.7	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile O(veh)	0.2	-	-	0	-	

6: 80th St & Pecos Rd
2030 Background plus ALA without Site - PM Peak Hour

HCM 6th TWSC

Intersection

Int Delay, s/veh 22.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑		↑	↑	
Traffic Vol, veh/h	351	128	12	326	191	42
Future Vol, veh/h	351	128	12	326	191	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	382	213	20	354	318	70

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	595
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	981
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	981
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	77.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	390	-	-	981	-
HCM Lane V/C Ratio	0.996	-	-	0.02	-
HCM Control Delay (s)	77.6	-	-	8.7	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	12	-	-	0.1	-

9: Sossaman Rd & Pecos Rd

2030 Background plus ALA without Site - PM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	266	353	83	255	37	279	200	57	115	666	54
Future Volume (veh/h)	37	266	353	83	255	37	279	200	57	115	666	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	289	384	90	277	40	303	217	62	125	724	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	335	494	418	299	530	449	339	531	152	500	522	43
Arrive On Green	0.05	0.26	0.26	0.07	0.28	0.28	0.15	0.38	0.38	0.08	0.31	0.31
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1399	400	1781	1706	139
Grp Volume(v), veh/h	40	289	384	90	277	40	303	0	279	125	0	783
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1798	1781	0	1845
Q Serve(g_s), s	1.6	13.6	23.9	3.6	12.6	1.9	12.8	0.0	11.5	4.7	0.0	31.0
Cycle Q Clear(g_c), s	1.6	13.6	23.9	3.6	12.6	1.9	12.8	0.0	11.5	4.7	0.0	31.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.08
Lane Grp Cap(c), veh/h	335	494	418	299	530	449	339	0	683	500	0	564
V/C Ratio(X)	0.12	0.59	0.92	0.30	0.52	0.09	0.89	0.00	0.41	0.25	0.00	1.39
Avail Cap(c_a), veh/h	433	526	446	363	530	449	440	0	683	557	0	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.8	32.5	36.2	24.5	30.6	26.7	28.0	0.0	23.1	20.9	0.0	35.2
Incr Delay (d2), s/veh	0.2	1.5	23.2	0.6	0.9	0.1	16.8	0.0	1.8	0.3	0.0	185.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.3	11.7	1.5	5.8	0.7	6.9	0.0	5.2	2.0	0.0	42.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	34.0	59.4	25.1	31.5	26.8	44.8	0.0	24.9	21.2	0.0	220.6
LnGrp LOS	C	C	E	C	C	C	D	A	C	C	A	F
Approach Vol, veh/h	713			407			582			908		
Approach Delay, s/veh	47.2			29.6			35.3			193.1		
Approach LOS	D			C			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	45.0	11.4	33.3	19.3	37.5	9.4	35.2				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	6.7	13.5	5.6	25.9	14.8	33.0	3.6	14.6				
Green Ext Time (p_c), s	0.1	1.7	0.1	0.9	0.5	0.0	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay	92.6											
HCM 6th LOS	F											

9: Sossaman Rd & Pecos Rd

2030 Background plus ALA without Site - PM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	289	384	90	277	40	303	279	125	783
v/c Ratio	0.11	0.70	0.59	0.28	0.58	0.08	0.83	0.38	0.22	1.27
Control Delay	20.5	45.2	7.5	22.7	37.7	0.3	42.3	24.1	14.3	165.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.5	45.2	7.5	22.7	37.7	0.3	42.3	24.1	14.3	165.9
Queue Length 50th (ft)	16	169	0	37	159	0	131	119	37	-672
Queue Length 95th (ft)	38	271	75	71	252	0	#273	219	78	#1043
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	398	550	738	347	566	588	455	729	594	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.53	0.52	0.26	0.49	0.07	0.67	0.38	0.21	1.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

1: Sossaman Rd & Germann Rd
2030 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	426.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	128	170	1290	437	116	795
Future Vol, veh/h	128	170	1290	437	116	795
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	139	185	1402	475	126	864
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2518	1402	0	0	1402	0
Stage 1	1402	-	-	-	-	-
Stage 2	1116	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 31	~ 171	-	-	487	-
Stage 1	228	-	-	-	-	-
Stage 2	313	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 16	~ 171	-	-	487	-
Mov Cap-2 Maneuver	~ 16	-	-	-	-	-
Stage 1	228	-	-	-	-	-
Stage 2	157	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s \$	4199	0		1.9		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	33	487	-	
HCM Lane V/C Ratio	-	-	9.816	0.259	-	
HCM Control Delay (s)	-	-\$ 4199		15	0	
HCM Lane LOS	-	-	F	B	A	
HCM 95th %tile Q(veh)	-	-	39.4	1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2: 80th Street/80th St & Germann Rd
2030 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	552.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	255	304	78	12	221	447	45	130	74	34	30	4
Future Vol, veh/h	255	304	78	12	221	447	45	130	74	34	30	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	250	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	70	92	92	70	60	92	92	92	70	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	277	434	85	13	316	745	49	141	80	49	33	4
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1061	0	0	519	0	0	1764	2118	477	1483	1415	316
Stage 1	-	-	-	-	-	-	1031	1031	-	342	342	-
Stage 2	-	-	-	-	-	-	733	1087	-	1141	1073	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	657	-	-	1047	-	-	66	~ 50	588	103	137	724
Stage 1	-	-	-	-	-	-	281	310	-	673	638	-
Stage 2	-	-	-	-	-	-	412	292	-	244	297	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	657	-	-	1047	-	-	~ 18	~ 19	588	-	53	724
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 18	~ 19	-	-	53	-
Stage 1	-	-	-	-	-	-	112	~ 124	-	269	614	-
Stage 2	-	-	-	-	-	-	373	281	-	-	119	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	5			0.1			\$ 4525.8					
HCM LOS							F			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	26	657	-	-	1047	-	-	-	59			
HCM Lane V/C Ratio	10.41	0.422	-	-	0.012	-	-	-	0.626			
HCM Control Delay (s)	\$ 4525.8	14.4	0	-	8.5	0	-	-	137.7			
HCM Lane LOS	F	B	A	-	A	A	-	-	F			
HCM 95th %tile Q(veh)	33.6	2.1	-	-	0	-	-	-	2.6			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s			+: Computation Not Defined				*: All major volume in platoon			

3: Extg West Driveway & Germann Rd
2030 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑	↑	↑
Traffic Vol, veh/h	303	83	35	680	0	0
Future Vol, veh/h	303	83	35	680	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	329	138	58	739	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	467	0	1184	165
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	855	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	1093	-	195	851
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	416	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1093	-	185	851
Mov Cap-2 Maneuver	-	-	-	-	185	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	394	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.6		0	
HCM LOS	A					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	1093	-	
HCM Lane V/C Ratio	-	-	-	0.053	-	
HCM Control Delay (s)	0	-	-	8.5	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.2	-	

4: Extg East Driveway & Germann Rd
2030 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	6.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	
Traffic Vol, veh/h	303	0	0	670	43	118
Future Vol, veh/h	303	0	0	670	43	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	329	0	0	1117	72	197
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	-	-	-	1446	165
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	1117	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	133	851
Stage 1	-	0	0	-	702	-
Stage 2	-	0	0	-	312	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	133	851
Mov Cap-2 Maneuver	-	-	-	-	133	-
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	312	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	0		42.5		
HCM LOS				E		
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	349	-	-			
HCM Lane V/C Ratio	0.769	-	-			
HCM Control Delay (s)	42.5	-	-			
HCM Lane LOS	E	-	-			
HCM 95th %tile Q(veh)	6.2	-	-			

5: Hawes Rd & Germann Rd
2030 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	384	16	1	582	29	1
Future Vol, veh/h	384	16	1	582	29	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	417	17	1	633	32	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	434	0	1052	417
Stage 1	-	-	-	-	417	-
Stage 2	-	-	-	-	635	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1126	-	251	636
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	528	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1126	-	251	636
Mov Cap-2 Maneuver	-	-	-	-	251	-
Stage 1	-	-	-	-	665	-
Stage 2	-	-	-	-	527	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		21.1	
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	256	-	-	1126	-	
HCM Lane V/C Ratio	0.127	-	-	0.001	-	
HCM Control Delay (s)	21.1	-	-	8.2	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile O(veh)	0.4	-	-	0	-	

6: 80th St & Pecos Rd
2030 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	2333					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↗	
Traffic Vol, veh/h	274	284	170	447	815	286
Future Vol, veh/h	274	284	170	447	815	286
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	70	70	92	70	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	298	406	243	486	1164	477
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	704	0	1270	298
Stage 1	-	-	-	-	298	-
Stage 2	-	-	-	-	972	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	894	-	~ 186	741
Stage 1	-	-	-	-	~ 753	-
Stage 2	-	-	-	-	~ 367	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	894	-	~ 117	741
Mov Cap-2 Maneuver	-	-	-	-	~ 117	-
Stage 1	-	-	-	-	~ 753	-
Stage 2	-	-	-	-	~ 230	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		3.5		\$ 4367.8	
HCM LOS					F	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	155	-	-	894	-	
HCM Lane V/C Ratio	10.587	-	-	0.272	-	
HCM Control Delay (s)	\$ 4367.8	-	-	10.5	0	
HCM Lane LOS	F	-	-	B	A	
HCM 95th %tile Q(veh)	189	-	-	1.1	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

7: 80th St & Driveway A
2030 Background plus ALA with Site - AM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	124.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	665	458	375	375	68
Future Vol, veh/h	0	665	458	375	375	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	70	92	70	70	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	950	498	536	536	74
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	498	0	0	1034	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	~ 572	-	-	672	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	~ 572	-	-	672	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s\$	323.7	0		24.6		
HCM LOS	F					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	- 572	672	-		
HCM Lane V/C Ratio	-	- 1.661	0.797	-		
HCM Control Delay (s)	-	-\$ 323.7	28	-		
HCM Lane LOS	-	- F	D	-		
HCM 95th %tile Q(veh)	-	- 53.9	8	-		
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

9: Sossaman Rd & Pecos Rd

2030 Background plus ALA with Site - AM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	584	257	222	515	65	480	367	53	71	171	11
Future Volume (veh/h)	43	584	257	222	515	65	480	367	53	71	171	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	635	279	241	560	71	522	399	58	77	186	12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	485	411	244	568	481	607	613	89	350	450	29
Arrive On Green	0.06	0.26	0.26	0.10	0.30	0.30	0.19	0.38	0.38	0.07	0.26	0.26
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1597	232	1781	1738	112
Grp Volume(v), veh/h	47	635	279	241	560	71	522	0	457	77	0	198
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1829	1781	0	1850
Q Serve(g_s), s	2.0	28.5	17.4	10.8	32.7	3.6	21.0	0.0	22.6	3.4	0.0	9.8
Cycle Q Clear(g_c), s	2.0	28.5	17.4	10.8	32.7	3.6	21.0	0.0	22.6	3.4	0.0	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.06
Lane Grp Cap(c), veh/h	169	485	411	244	568	481	607	0	703	350	0	479
V/C Ratio(X)	0.28	1.31	0.68	0.99	0.99	0.15	0.86	0.00	0.65	0.22	0.00	0.41
Avail Cap(c_a), veh/h	248	485	411	244	568	481	607	0	703	411	0	479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	40.7	36.6	29.3	38.1	27.9	24.7	0.0	27.8	26.6	0.0	33.8
Incr Delay (d2), s/veh	0.9	153.9	4.5	54.5	34.1	0.1	11.9	0.0	4.6	0.3	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	33.6	7.2	8.2	20.1	1.4	11.8	0.0	10.6	1.5	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	194.7	41.1	83.9	72.1	28.1	36.6	0.0	32.4	26.9	0.0	36.4
LnGrp LOS	C	F	D	F	E	C	D	A	C	C	A	D
Approach Vol, veh/h	961			872			979			275		
Approach Delay, s/veh	142.1			71.8			34.7			33.8		
Approach LOS	F			E			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	48.8	15.0	35.0	25.0	35.0	10.1	39.9				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	5.4	24.6	12.8	30.5	23.0	11.8	4.0	34.7				
Green Ext Time (p_c), s	0.1	2.5	0.0	0.0	0.0	0.9	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	78.5											
HCM 6th LOS	E											

9: Sossaman Rd & Pecos Rd
2030 Background plus ALA with Site - AM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	635	279	241	560	71	522	457	77	198
v/c Ratio	0.23	1.32	0.49	0.98	0.98	0.12	0.83	0.63	0.21	0.41
Control Delay	22.3	191.4	12.4	81.0	73.6	0.4	33.0	32.4	16.6	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	191.4	12.4	81.0	73.6	0.4	33.0	32.4	16.6	36.4
Queue Length 50th (ft)	19	~580	36	119	~432	0	247	260	27	114
Queue Length 95th (ft)	43	#801	113	#285	#660	0	#393	388	52	184
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	248	482	567	246	570	591	626	723	414	480
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	1.32	0.49	0.98	0.98	0.12	0.83	0.63	0.19	0.41
Intersection Summary										
~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.										
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.										

1: Sossaman Rd & Germann Rd
2030 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	252.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	117	108	598	415	207	1001
Future Vol, veh/h	117	108	598	415	207	1001
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	0	-	-	70	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	127	117	650	451	225	1088
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	2188	650	0	0	650	0
Stage 1	650	-	-	-	-	-
Stage 2	1538	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	~ 50	469	-	-	936	-
Stage 1	520	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 20	469	-	-	936	-
Mov Cap-2 Maneuver	~ 20	-	-	-	-	-
Stage 1	520	-	-	-	-	-
Stage 2	~ 76	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Delay, s	\$ 2736.6		0		1.7	
HCM LOS	F					
Minor Lane/Major Mvmt	NBT		NBRWBLn1		SBL	SBT
Capacity (veh/h)	-		-		37	936
HCM Lane V/C Ratio	-		-		6.61	0.24
HCM Control Delay (s)	-		\$ 2736.6		10.1	0
HCM Lane LOS	-		-		F	B
HCM 95th %tile Q(veh)	-		-		29.1	0.9
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

2: 80th Street/80th St & Germann Rd
2030 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection												
Int Delay, s/veh	45.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	132	375	117	18	183	245	36	79	25	82	59	7
Future Vol, veh/h	132	375	117	18	183	245	36	79	25	82	59	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	250	-	-	-	0	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	70	92	92	70	60	92	92	92	70	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	143	536	127	20	261	408	39	86	27	117	64	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	669	0	0	663	0	0	1427	1595	600	1243	1250	261
Stage 1	-	-	-	-	-	-	886	886	-	301	301	-
Stage 2	-	-	-	-	-	-	541	709	-	942	949	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	921	-	-	926	-	-	113	107	501	151	173	778
Stage 1	-	-	-	-	-	-	339	363	-	708	665	-
Stage 2	-	-	-	-	-	-	525	437	-	316	339	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	921	-	-	926	-	-	54	~ 77	501	-	125	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	54	~ 77	-	-	125	-
Stage 1	-	-	-	-	-	-	254	272	-	530	640	-
Stage 2	-	-	-	-	-	-	450	421	-	153	254	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.7			0.3			\$ 535.3					
HCM LOS							F			-		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2			
Capacity (veh/h)	80	921	-	-	926	-	-	-	137			
HCM Lane V/C Ratio	1.902	0.156	-	-	0.021	-	-	-	0.524			
HCM Control Delay (s)	\$ 535.3	9.6	0	-	9	0	-	-	57.1			
HCM Lane LOS	F	A	A	-	A	A	-	-	F			
HCM 95th %tile Q(veh)	13.3	0.6	-	-	0.1	-	-	-	2.5			
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

3: Extg West Driveway & Germann Rd
2030 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑	↘↗	
Traffic Vol, veh/h	421	83	54	499	0	0
Future Vol, veh/h	421	83	54	499	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	200	0	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	60	60	92	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	458	138	90	542	0	0
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	596	0	1180	229
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	722	-
Critical Hdwy	-	-	4.13	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.219	-	3.519	3.319
Pot Cap-1 Maneuver	-	-	978	-	196	774
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	480	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	978	-	178	774
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	436	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.3		0	
HCM LOS					A	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	-	-	-	978	-	
HCM Lane V/C Ratio	-	-	-	0.092	-	
HCM Control Delay (s)	0	-	-	9.1	-	
HCM Lane LOS	A	-	-	A	-	
HCM 95th %tile O(veh)	-	-	-	0.3	-	

4: Extg East Driveway & Germann Rd
2030 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	13.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↕	
Traffic Vol, veh/h	421	0	0	488	62	152
Future Vol, veh/h	421	0	0	488	62	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	60	60	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	458	0	0	813	103	253
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1271	229
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	813	-
Critical Hdwy	-	-	-	-	6.63	6.93
Critical Hdwy Stg 1	-	-	-	-	5.83	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.519	3.319
Pot Cap-1 Maneuver	-	0	0	-	172	774
Stage 1	-	0	0	-	604	-
Stage 2	-	0	0	-	435	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	172	774
Mov Cap-2 Maneuver	-	-	-	-	172	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	435	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		63	
HCM LOS					F	
Minor Lane/Major Mvmt	NBLn1	EBT	WBT			
Capacity (veh/h)	384	-	-			
HCM Lane V/C Ratio	0.929	-	-			
HCM Control Delay (s)	63	-	-			
HCM Lane LOS	F	-	-			
HCM 95th %tile O(veh)	10	-	-			

5: Hawes Rd & Germann Rd
2030 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	499	12	0	442	17	1
Future Vol, veh/h	499	12	0	442	17	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	160	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	542	13	0	480	18	1
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	555	0	1022	542
Stage 1	-	-	-	-	542	-
Stage 2	-	-	-	-	480	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1015	-	261	540
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	622	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1015	-	261	540
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	583	-
Stage 2	-	-	-	-	622	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		19.4	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	269	-	-	1015	-	
HCM Lane V/C Ratio	0.073	-	-	-	-	
HCM Control Delay (s)	19.4	-	-	0	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

6: 80th St & Pecos Rd
2030 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	556.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↖	↘	
Traffic Vol, veh/h	351	246	91	326	468	227
Future Vol, veh/h	351	246	91	326	468	227
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	110	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	70	70	92	70	60
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	382	351	130	354	669	378
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	733	0	996	382
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	614	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	872	-	~ 271	665
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	~ 540	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	872	-	~ 221	665
Mov Cap-2 Maneuver	-	-	-	-	~ 221	-
Stage 1	-	-	-	-	690	-
Stage 2	-	-	-	-	~ 440	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.6		\$ 1203.2	
HCM LOS	F					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	291	-	-	872	-	
HCM Lane V/C Ratio	3.598	-	-	0.149	-	
HCM Control Delay (s)	\$ 1203.2	-	-	9.8	0	
HCM Lane LOS	F	-	-	A	A	
HCM 95th %tile Q(veh)	98.5	-	-	0.5	-	
Notes						
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon

7: 80th St & Driveway A
2030 Background plus ALA with Site - PM Peak Hour

HCM 6th TWSC

Intersection						
Int Delay, s/veh	14.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	462	259	197	197	147
Future Vol, veh/h	0	462	259	197	197	147
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	200	250	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	70	92	70	70	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	660	282	281	281	160
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	282	0	0	563	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.22	-	-	4.12	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	0	757	-	-	1008	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	757	-	-	1008	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	32.9	0		6.3		
HCM LOS	D					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT		
Capacity (veh/h)	-	-	757	1008	-	
HCM Lane V/C Ratio	-	-	0.872	0.279	-	
HCM Control Delay (s)	-	-	32.9	9.9	-	
HCM Lane LOS	-	-	D	A	-	
HCM 95th %tile Q(veh)	-	-	10.8	1.1	-	

9: Sossaman Rd & Pecos Rd

2030 Background plus ALA with Site - PM Peak Hour

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	467	386	222	552	69	342	232	57	132	683	54
Future Volume (veh/h)	37	467	386	222	552	69	342	232	57	132	683	54
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	508	420	241	600	75	372	252	62	143	742	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	487	413	245	579	490	399	538	132	456	445	35
Arrive On Green	0.05	0.26	0.26	0.10	0.31	0.31	0.19	0.37	0.37	0.08	0.26	0.26
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1450	357	1781	1710	136
Grp Volume(v), veh/h	40	508	420	241	600	75	372	0	314	143	0	801
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1806	1781	0	1846
Q Serve(g_s), s	1.7	28.5	28.5	10.7	33.9	3.8	18.4	0.0	14.5	6.3	0.0	28.5
Cycle Q Clear(g_c), s	1.7	28.5	28.5	10.7	33.9	3.8	18.4	0.0	14.5	6.3	0.0	28.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.20	1.00		0.07
Lane Grp Cap(c), veh/h	157	487	413	245	579	490	399	0	671	456	0	481
V/C Ratio(X)	0.25	1.04	1.02	0.98	1.04	0.15	0.93	0.00	0.47	0.31	0.00	1.67
Avail Cap(c_a), veh/h	245	487	413	245	579	490	407	0	671	500	0	481
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	40.5	40.5	29.1	37.8	27.4	31.7	0.0	26.2	26.2	0.0	40.5
Incr Delay (d2), s/veh	0.8	52.5	48.9	53.0	47.3	0.1	28.0	0.0	2.3	0.4	0.0	309.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	20.0	16.5	8.1	22.8	1.4	12.8	0.0	6.6	2.7	0.0	54.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	93.0	89.4	82.1	85.1	27.5	59.7	0.0	28.5	26.6	0.0	349.6
LnGrp LOS	C	F	F	F	F	C	E	A	C	C	A	F
Approach Vol, veh/h	968			916			686			944		
Approach Delay, s/veh	88.9			79.6			45.4			300.7		
Approach LOS	F			E			D			F		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	47.2	15.0	35.0	24.5	35.0	9.6	40.4				
Change Period (Y+Rc), s	4.0	6.5	4.0	6.5	4.0	6.5	4.0	6.5				
Max Green Setting (Gmax), s	11.0	38.5	11.0	28.5	21.0	28.5	11.0	28.5				
Max Q Clear Time (g_c+I1), s	8.3	16.5	12.7	30.5	20.4	30.5	3.7	35.9				
Green Ext Time (p_c), s	0.1	1.9	0.0	0.0	0.1	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay	134.9											
HCM 6th LOS	F											

9: Sossaman Rd & Pecos Rd
2030 Background plus ALA with Site - PM Peak Hour

Queues

										
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	508	420	241	600	75	372	314	143	801
v/c Ratio	0.20	1.05	0.62	0.98	0.97	0.12	0.93	0.48	0.31	1.64
Control Delay	21.8	94.2	10.8	81.2	68.9	0.4	59.9	29.4	17.5	327.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.8	94.2	10.8	81.2	68.9	0.4	59.9	29.4	17.5	327.7
Queue Length 50th (ft)	16	~393	33	121	~491	0	202	164	52	~833
Queue Length 95th (ft)	38	#599	132	#286	#718	0	#380	251	88	#1071
Internal Link Dist (ft)		488			2546			2494		389
Turn Bay Length (ft)	100		250	100		250	100		100	
Base Capacity (vph)	247	485	678	246	616	627	411	653	481	487
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	1.05	0.62	0.98	0.97	0.12	0.91	0.48	0.30	1.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

2: 80th Street/80th St & Germann Rd

2030 Background Plus ALA & Site with Traffic Signal - AM Peak Hour HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	255	304	78	12	221	447	45	130	74	34	30	4
Future Volume (veh/h)	255	304	78	12	221	447	45	130	74	34	30	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	425	507	85	13	368	745	49	141	80	57	33	7
Peak Hour Factor	0.60	0.60	0.92	0.92	0.60	0.60	0.92	0.92	0.92	0.60	0.92	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	516	943	158	455	893	757	320	212	120	170	283	60
Arrive On Green	0.14	0.60	0.60	0.02	0.48	0.48	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	1561	262	1781	1870	1585	1367	1120	636	1160	1496	317
Grp Volume(v), veh/h	425	0	592	13	368	745	49	0	221	57	0	40
Grp Sat Flow(s),veh/h/ln	1781	0	1823	1781	1870	1585	1367	0	1756	1160	0	1813
Q Serve(g_s), s	9.4	0.0	15.9	0.3	10.7	38.8	2.6	0.0	9.8	4.0	0.0	1.5
Cycle Q Clear(g_c), s	9.4	0.0	15.9	0.3	10.7	38.8	4.1	0.0	9.8	13.8	0.0	1.5
Prop In Lane	1.00		0.14	1.00		1.00	1.00		0.36	1.00		0.17
Lane Grp Cap(c), veh/h	516	0	1101	455	893	757	320	0	332	170	0	343
V/C Ratio(X)	0.82	0.00	0.54	0.03	0.41	0.98	0.15	0.00	0.66	0.33	0.00	0.12
Avail Cap(c_a), veh/h	592	0	1101	544	893	757	363	0	388	207	0	400
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.4	0.0	9.7	11.0	14.2	21.6	29.9	0.0	31.5	37.9	0.0	28.1
Incr Delay (d2), s/veh	8.2	0.0	0.5	0.0	0.3	28.7	0.2	0.0	3.4	1.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.1	0.1	4.0	18.1	0.9	0.0	4.4	1.2	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	0.0	10.2	11.0	14.5	50.3	30.1	0.0	34.9	39.0	0.0	28.3
LnGrp LOS	B	A	B	B	B	D	C	A	C	D	A	C
Approach Vol, veh/h	1017			1126			270			97		
Approach Delay, s/veh	14.2			38.2			34.0			34.6		
Approach LOS	B			D			C			C		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	21.4			56.6			21.4			46.0		
Change Period (Y+Rc), s	5.5			6.0			5.5			6.0		
Max Green Setting (Gmax), s	18.5			50.0			18.5			40.0		
Max Q Clear Time (g_c+I1), s	11.8			17.9			15.8			40.8		
Green Ext Time (p_c), s	0.7			3.9			0.1			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	27.9											
HCM 6th LOS	C											

2: 80th Street/80th St & Germann Rd

2030 Background Plus ALA & Site with Traffic Signal - AM Peak Hour

Queues

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	425	592	13	368	745	49	221	57	40
v/c Ratio	0.60	0.51	0.03	0.52	0.89	0.20	0.65	0.37	0.12
Control Delay	9.1	10.1	5.7	20.0	24.2	31.0	36.1	37.3	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	10.1	5.7	20.0	24.2	31.0	36.1	37.3	25.6
Queue Length 50th (ft)	68	113	2	125	158	20	85	24	13
Queue Length 95th (ft)	76	160	7	128	94	54	173	41	42
Internal Link Dist (ft)		2026		430			272		390
Turn Bay Length (ft)	250		150		250	150		250	
Base Capacity (vph)	729	1346	472	1080	1076	365	493	230	491
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.44	0.03	0.34	0.69	0.13	0.45	0.25	0.08
Intersection Summary									

6: 80th St & Pecos Rd

2030 Background Plus ALA & Site with Traffic Signal - AM Peak Hour HCM 6th Signalized Intersection Summary

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↙	↗
Traffic Volume (veh/h)	274	284	170	447	815	286
Future Volume (veh/h)	274	284	170	447	815	286
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	298	406	283	486	1164	409
Peak Hour Factor	0.92	0.70	0.60	0.92	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	363	1121	319	674	913	1006
Arrive On Green	0.19	0.19	0.12	0.36	0.51	0.51
Sat Flow, veh/h	1870	1585	1781	1870	1781	1585
Grp Volume(v), veh/h	298	406	283	486	1164	409
Grp Sat Flow(s),veh/h/ln	1870	1585	1781	1870	1781	1585
Q Serve(g_s), s	15.6	10.3	12.5	23.0	52.5	13.0
Cycle Q Clear(g_c), s	15.6	10.3	12.5	23.0	52.5	13.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	363	1121	319	674	913	1006
V/C Ratio(X)	0.82	0.36	0.89	0.72	1.27	0.41
Avail Cap(c_a), veh/h	502	1239	319	813	913	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	5.9	29.3	28.3	24.9	9.2
Incr Delay (d2), s/veh	7.5	0.2	24.8	2.5	132.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	10.2	7.3	10.1	54.0	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	47.0	6.1	54.1	30.8	156.9	9.5
LnGrp LOS	D	A	D	C	F	A
Approach Vol, veh/h	704			769	1573	
Approach Delay, s/veh	23.4			39.4	118.6	
Approach LOS	C			D	F	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	59.0		17.0	26.4	43.4	
Change Period (Y+Rc), s	6.5		4.5	6.5	6.5	
Max Green Setting (Gmax), s	52.5		12.5	27.5	44.5	
Max Q Clear Time (g_c+I1), s	54.5		14.5	17.6	25.0	
Green Ext Time (p_c), s	0.0		0.0	2.2	2.6	
Intersection Summary						
HCM 6th Ctrl Delay			76.6			
HCM 6th LOS			E			



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	298	406	283	486	1164	409
v/c Ratio	0.79	0.32	0.84	0.71	1.30	0.35
Control Delay	54.3	2.6	46.3	34.5	168.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	2.6	46.3	34.5	168.0	3.9
Queue Length 50th (ft)	189	35	135	272	~998	37
Queue Length 95th (ft)	283	37	124	388	#910	49
Internal Link Dist (ft)	2546			7878	2092	
Turn Bay Length (ft)		250	250		250	250
Base Capacity (vph)	495	1261	339	800	897	1164
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.32	0.83	0.61	1.30	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

2: 80th Street/80th St & Germann Rd

2030 Background Plus ALA & Site with Traffic Signal - PM Peak Hour HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	132	375	117	18	183	245	36	79	25	82	59	7
Future Volume (veh/h)	132	375	117	18	183	245	36	79	25	82	59	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	625	127	20	305	408	39	86	27	137	64	12
Peak Hour Factor	0.60	0.60	0.92	0.92	0.60	0.60	0.92	0.92	0.92	0.60	0.92	0.60
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	531	741	151	264	771	654	347	273	86	315	306	57
Arrive On Green	0.10	0.49	0.49	0.02	0.41	0.41	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	1509	307	1781	1870	1585	1323	1365	428	1280	1532	287
Grp Volume(v), veh/h	220	0	752	20	305	408	39	0	113	137	0	76
Grp Sat Flow(s),veh/h/ln	1781	0	1815	1781	1870	1585	1323	0	1793	1280	0	1819
Q Serve(g_s), s	3.6	0.0	20.2	0.4	6.4	11.4	1.4	0.0	3.0	5.8	0.0	2.0
Cycle Q Clear(g_c), s	3.6	0.0	20.2	0.4	6.4	11.4	3.4	0.0	3.0	8.8	0.0	2.0
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.24	1.00		0.16
Lane Grp Cap(c), veh/h	531	0	892	264	771	654	347	0	359	315	0	364
V/C Ratio(X)	0.41	0.00	0.84	0.08	0.40	0.62	0.11	0.00	0.31	0.43	0.00	0.21
Avail Cap(c_a), veh/h	839	0	1614	396	1331	1128	517	0	590	480	0	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.4	0.0	12.4	11.3	11.6	13.1	20.2	0.0	19.2	22.9	0.0	18.8
Incr Delay (d2), s/veh	0.5	0.0	2.3	0.1	0.3	1.0	0.1	0.0	0.5	0.9	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	6.2	0.1	2.1	3.3	0.4	0.0	1.2	1.7	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	0.0	14.7	11.4	11.9	14.0	20.3	0.0	19.7	23.9	0.0	19.1
LnGrp LOS	A	A	B	B	B	B	C	A	B	C	A	B
Approach Vol, veh/h		972			733			152			213	
Approach Delay, s/veh		13.1			13.1			19.9			22.2	
Approach LOS		B			B			B			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.7	5.8	33.6		16.7	10.3	29.2				
Change Period (Y+Rc), s		5.5	4.5	6.0		5.5	4.5	6.0				
Max Green Setting (Gmax), s		18.5	5.5	50.0		18.5	15.5	40.0				
Max Q Clear Time (g_c+I1), s		5.4	2.4	22.2		10.8	5.6	13.4				
Green Ext Time (p_c), s		0.5	0.0	5.4		0.5	0.4	3.1				
Intersection Summary												
HCM 6th Ctrl Delay			14.5									
HCM 6th LOS			B									

2: 80th Street/80th St & Germann Rd

2030 Background Plus ALA & Site with Traffic Signal - PM Peak Hour

Queues

									
Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	220	752	20	305	408	39	113	137	76
v/c Ratio	0.33	0.76	0.05	0.48	0.50	0.15	0.30	0.54	0.20
Control Delay	6.4	17.6	5.6	17.6	3.9	27.0	24.6	35.0	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	17.6	5.6	17.6	3.9	27.0	24.6	35.0	24.2
Queue Length 50th (ft)	27	148	2	81	0	10	25	37	17
Queue Length 95th (ft)	40	216	10	98	0	46	95	80	70
Internal Link Dist (ft)		2026		430			272		390
Turn Bay Length (ft)	250		150		250	150		250	
Base Capacity (vph)	779	1503	367	1344	1256	441	611	426	613
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.50	0.05	0.23	0.32	0.09	0.18	0.32	0.12
Intersection Summary									

6: 80th St & Pecos Rd

2030 Background Plus ALA & Site with Traffic Signal - PM Peak Hour HCM 6th Signalized Intersection Summary

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	351	246	91	326	468	227
Future Volume (veh/h)	351	246	91	326	468	227
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	382	351	152	354	669	324
Peak Hour Factor	0.92	0.70	0.60	0.92	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	475	1075	294	748	756	807
Arrive On Green	0.25	0.25	0.08	0.40	0.42	0.42
Sat Flow, veh/h	1870	1585	1781	1870	1781	1585
Grp Volume(v), veh/h	382	351	152	354	669	324
Grp Sat Flow(s),veh/h/ln	1870	1585	1781	1870	1781	1585
Q Serve(g_s), s	14.1	6.8	4.4	10.3	25.6	9.3
Cycle Q Clear(g_c), s	14.1	6.8	4.4	10.3	25.6	9.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	475	1075	294	748	756	807
V/C Ratio(X)	0.80	0.33	0.52	0.47	0.89	0.40
Avail Cap(c_a), veh/h	697	1263	444	1127	1267	1261
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	4.9	18.5	16.4	19.6	11.2
Incr Delay (d2), s/veh	4.3	0.2	1.4	0.5	4.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	5.3	1.7	3.9	10.5	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.1	5.1	19.9	16.9	24.0	11.5
LnGrp LOS	C	A	B	B	C	B
Approach Vol, veh/h	733			506	993	
Approach Delay, s/veh	18.1			17.8	19.9	
Approach LOS	B			B	B	
Timer - Assigned Phs	2		3	4	8	
Phs Duration (G+Y+Rc), s	37.8		10.8	25.3	36.0	
Change Period (Y+Rc), s	6.5		4.5	6.5	6.5	
Max Green Setting (Gmax), s	52.5		12.5	27.5	44.5	
Max Q Clear Time (g_c+I1), s	27.6		6.4	16.1	12.3	
Green Ext Time (p_c), s	3.7		0.2	2.6	2.0	
Intersection Summary						
HCM 6th Ctrl Delay			18.9			
HCM 6th LOS			B			



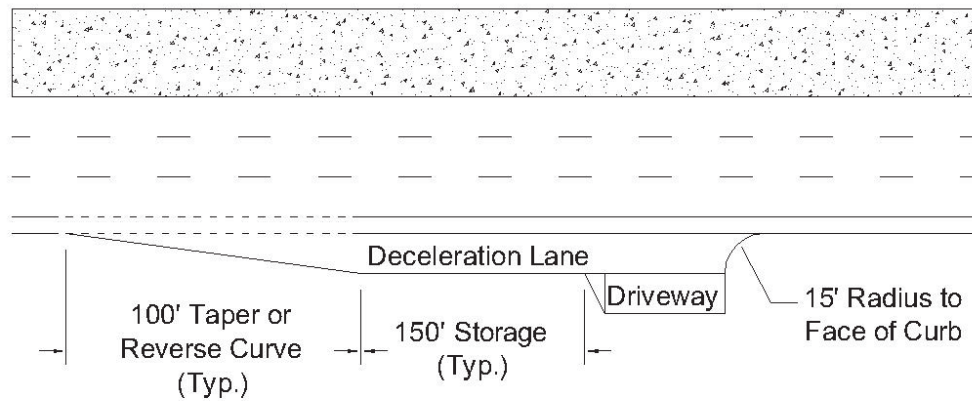
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	382	351	152	354	669	324
v/c Ratio	0.81	0.27	0.46	0.46	0.87	0.31
Control Delay	49.5	0.8	22.8	23.4	36.6	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	0.8	22.8	23.4	36.6	5.1
Queue Length 50th (ft)	217	0	56	152	358	43
Queue Length 95th (ft)	#407	2	71	266	357	51
Internal Link Dist (ft)	2546			7878	2092	
Turn Bay Length (ft)		250	250		250	250
Base Capacity (vph)	587	1447	375	951	1065	1087
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.65	0.24	0.41	0.37	0.63	0.30

Intersection Summary

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

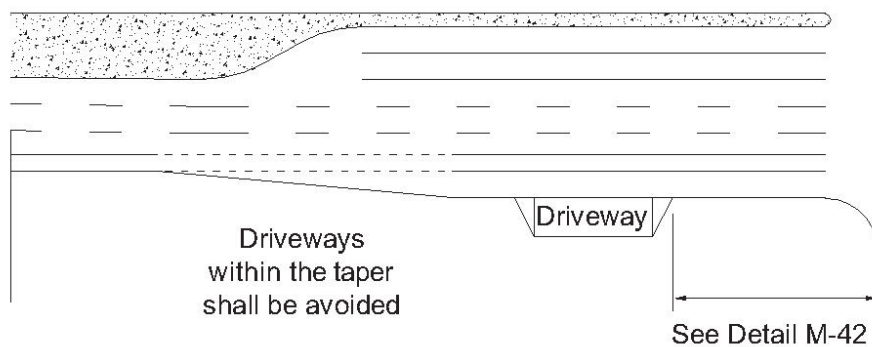
APPENDIX G: Relevant Standards

Standard Deceleration Lane



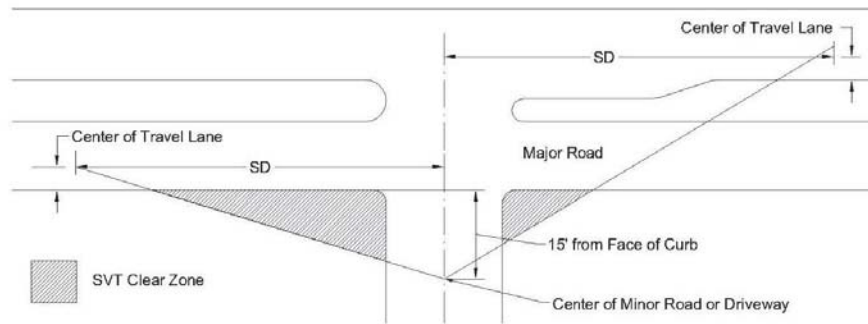
Note: Deceleration lane shall be 12' wide minimum.

Driveway within Right-Turn Storage

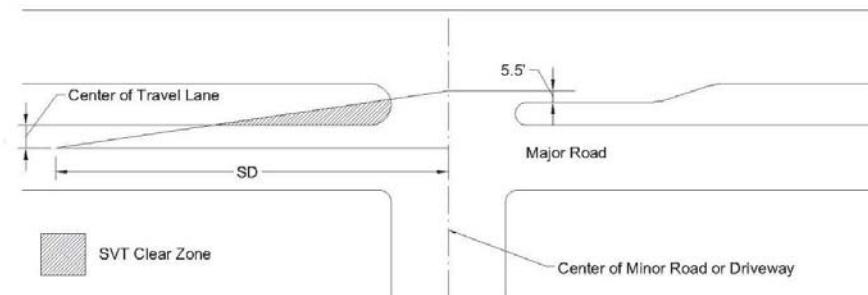


Note: Roadway and Intersection to be designed per M-46 Series of the Mesa Standard Details

Figure 2.2 – Deceleration Lane Treatments

**Case B1 – Left Turn Maneuver From STOP**

Required Sight Distance (SD)				
Through Road Cross-Section	2 LU*	3 LU*	4LD** 5 LU*	6LD** 7 LU*
Through Road Width	34', 40', 48'	46, 48'	68', 72'	88', 94'
Time gap (t_g)	7.5"	8.0"	8.5"	9.0"
Design Speed				
30 mph	331	353	375	397
35 mph	386	412	437	463
40 mph	441	470	500	529
45 mph	496	529	562	595
50 mph	551	588	625	662

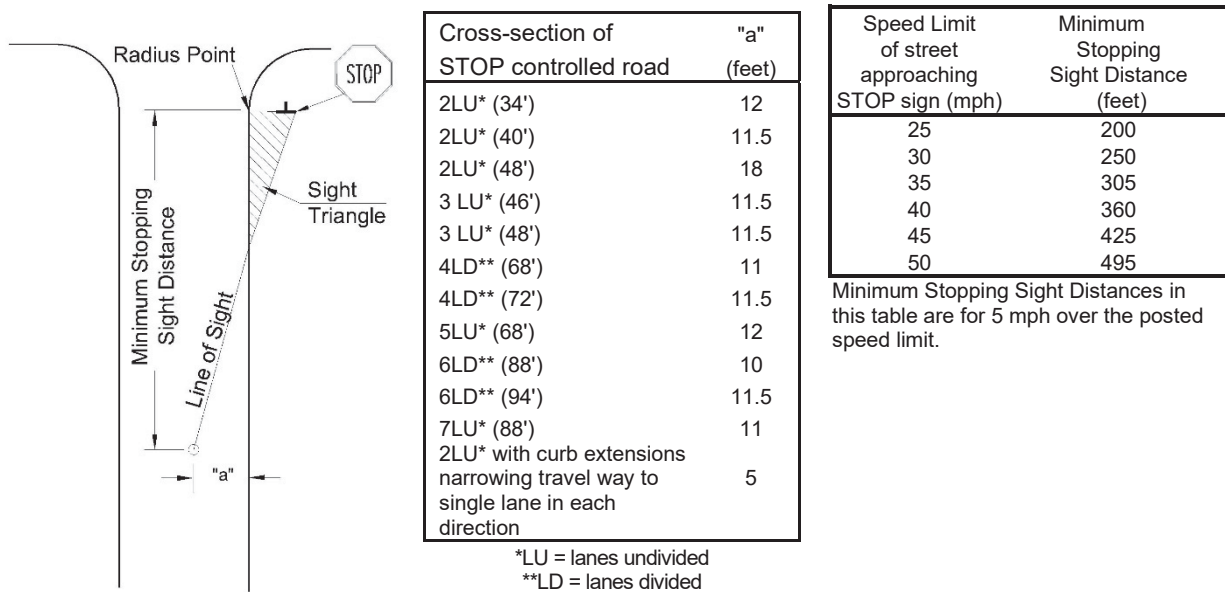
**Case F - Left Turns From Major Road**

Required Sight Distance (SD)		
Through Road Cross-Section	4LD**	6LD**
Through Road Width	68'	88', 94'
Time gap (t_g)	6.0"	6.5"
Design Speed		
30 mph	265	290
35 mph	310	335
40 mph	355	385
45 mph	400	430
50 mph	445	480

*LU = lanes undivided **LD = lanes divided
 Intersection Sight Distance (SD) = $1.47 \cdot V \cdot t_g$
 V = Design Speed (mph) = 5 mph over the speed limit
 t_g = time gap (seconds) – Passenger Car, Level Grade

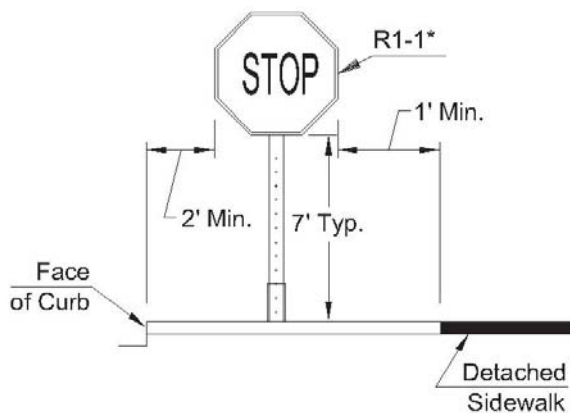
Figure 2.3 – Design Guidelines for Sight Triangles per AASHTO Green Book

Sight Visibility Triangle Approaching STOP Signs

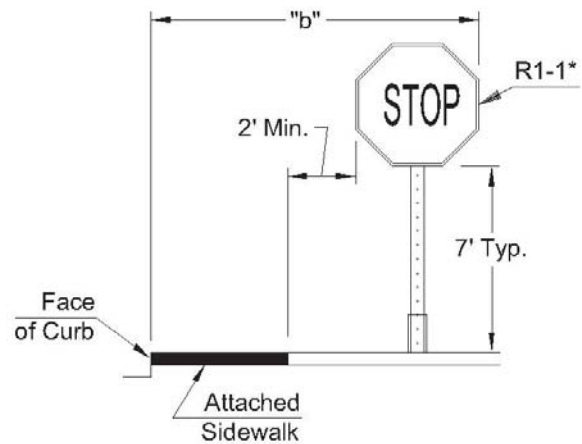


STOP Sign Locations for Attached and Detached (or Absent) Sidewalks

STOP sign location when sidewalk is detached or absent



STOP sign location when sidewalk is attached



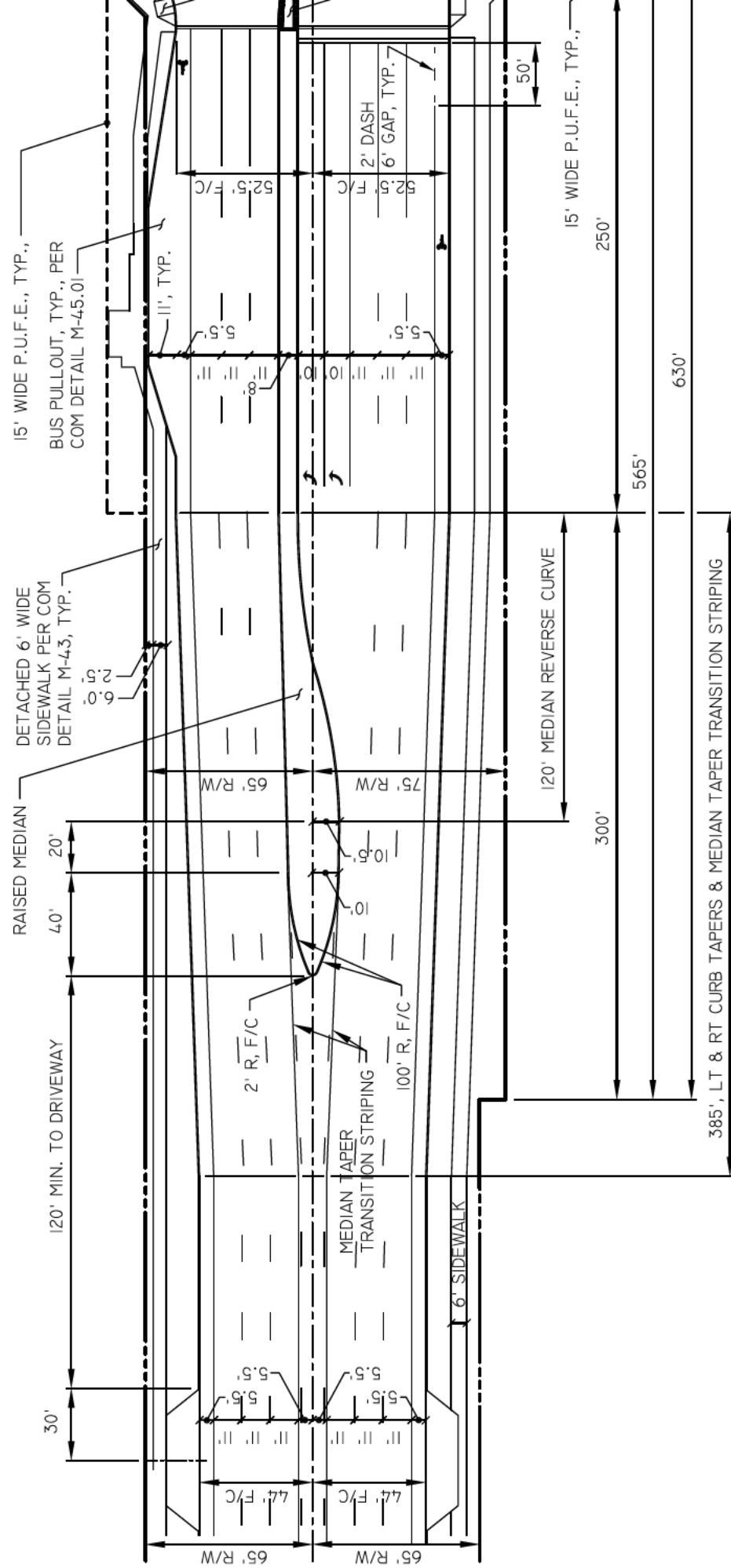
* Sign Size per latest Edition of the Manual on Uniform Traffic Control Devices

Figure 2.4 – Sight Distance Requirements for Stop Signs

I. ALL DIMENSIONS AT CURB LINE ARE TO FACE OF CURB (F/C) UNLESS OTHERWISE NOTED.

2. IF NO RIGHT TURN LANE, CONTINUE 6' BIKE LANE TO APPROACH.
3. DEVELOPER SHALL CONFIRM WITH THE CITY IF BUS PULLOUTS ARE REQUIRED AT EACH INTERSECTION.
4. FOR INTERSECTION LEGS WITH PEDESTRIAN REFUGE MEDIAN CROSSINGS, CROSSWALK SHALL BE PERPENDICULAR TO MEDIAN.
5. REFER TO COM DETAILS M-44-.01 FOR PUSHBUTTON LOCATIONS

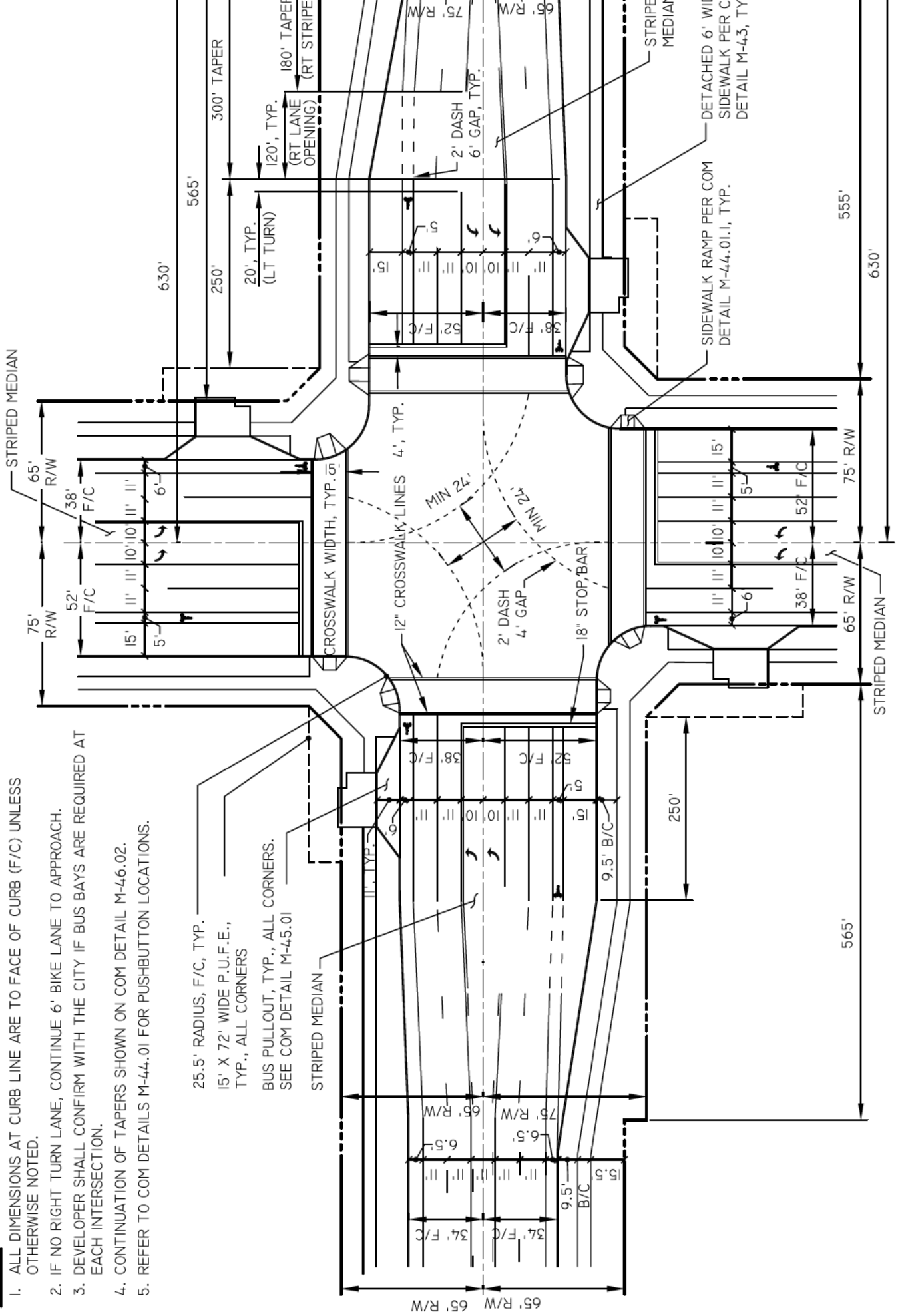
STRIPED MEDIAN ACROSS FROM RAISE



RAIS

NOTES

1. ALL DIMENSIONS AT CURB LINE ARE TO FACE OF CURB (F/C) UNLESS OTHERWISE NOTED.
2. IF NO RIGHT TURN LANE, CONTINUE 6' BIKE LANE TO APPROACH.
3. DEVELOPER SHALL CONFIRM WITH THE CITY IF BUS BAYS ARE REQUIRED AT EACH INTERSECTION.
4. CONTINUATION OF TAPERS SHOWN ON COM DETAIL M-46.02.
5. REFER TO COM DETAILS M-44.01 FOR PUSHBUTTON LOCATIONS.



APPENDIX H: Review Comments

1st Review Comments

Project: Heritage Gateway Charter School
Prepared by: EPS Group
Date of Report: 8/19/2021



Reviewer: City of Mesa
Date of Review: 9/8/2021

#	Reviewer:	Review Comment:	EPS Group Response:
1	Sabine Ellis, City of Mesa	Next time EPS prepares a TIS for Mesa, make sure to have a scoping discussion to avoid unnecessary rework (see section 204.4.3 of the manual).	Noted.
2	Sabine Ellis, City of Mesa	Refer to Section 204.4 of the 2021 Engineering and Design Standards Manual (Manual) for TIS guidelines. Several have been disregarded. Some will be pointed out as part of this review, but the expectation is that the person preparing this study will ensure all are met. If Queen Creek guidelines are more strict than Mesa's, then use those instead. It is not necessary, to prepare two separate TIS. Make sure to communicate any discrepancies.	Noted. The school was originally anticipated to generate less than 1,000 peak hour trips. The report has been updated to include the 2030 horizon year.
3	Sabine Ellis, City of Mesa	This TIS needs to be coordinated with Queen Creek and will not be approved by Mesa until letter of approval from Queen Creek is provided. Since this school directly affects both jurisdictions, a coordination meeting may be helpful.	Queen Creek has reviewed the TIS. A comment resolution meeting has occurred, and statement has been provided by Queen Creek. This submittal addresses the comments from Queen Creek.
4	Sabine Ellis, City of Mesa	How will the two schools interact (existing & proposed)	Drop-off & pick-up times between the primary enrollment of the two schools will be staggered by 30 minutes. Students will not attend both schools. The existing school will be 9-12 where the proposed school is K-8. Students will not be regularly crossing the street on a daily basis. They may cross for special circumstances and accompanied by a staff member. It is recommended to only occur when there is a crossing available (once signalized).
5	Sabine Ellis, City of Mesa	When these counts were taken, was the existing Heritage Academy fully occupied? If not, will have to adjust numbers for full occupancy for existing condition. How was shift of students to new school considered? Are there any backups currently that would impact the new school, for instance at Germann and 80th/196th St?	The existing Heritage Academy was fully occupied and in session when the traffic counts were conducted. A field observation revealed some vehicles parked on Germann Road in the shoulder. However, there were not backups on 80th/196th Street. The enrollment for the existing school will decrease when the new school is constructed since the younger grades (6-8) will relocate to the new campus.
6	Sabine Ellis, City of Mesa	Per Mesa's TIS guidelines, construction documents are not to be submitted until TIS is approved. See section 204.4.1 of the Manual. Do not resubmit civil plans until approval of the TIS.	A comment resolution/coordination meeting has occurred. The civil plans are being resubmitted with the updated TIS. Queen Creek has also completed their review of the TIS and provided a statement.
7	Sabine Ellis, City of Mesa	Need to include Lexington School and any other (future) traffic generators in analysis.	The hours for the Lexington School will be 8:30-2:30, and therefore is separated by a half-hour from the other schools and doesn't correspond to the peak hour of the surrounding streets and schools. Its maximum occupancy is 180 students. However, these students will not be arriving and dismissing at the same time as the Heritage Academy. (The K-8 school will operate from 8:00 AM to 3:30 PM.)
8	Sabine Ellis, City of Mesa	Agree with all of this but this has not been incorporated into the civil plans. A deceleration lane at the school driveway will be required. Also, a dedicated SB left turn lane needs to be provided. This may require pavement to be added beyond the north project limits to allow for the proper transition. As it stands, any right and left turning traffic waiting to get on the school premises will grid-lock 80th Street. That is not acceptable.	The updated Civil Plans reflect the auxiliary lanes on 80th Street. The NB right-turn has 200 feet of storage and the SB left-turn has 250 feet of storage. A westbound right-turn decel lane is also provided on Germann Road at the school driveway and at 80th Street.
9	Sabine Ellis, City of Mesa	Where was this growth rate taken from?	The 3% annual growth rate was utilized due to other Queen Creek traffic studies in the area and because of the anticipated future development. The ALA TIS assumed 2%. Queen Creek requested that a 5% annual growth rate be applied until 2025 and 2% for beyond 2025. Therefore, the TIS has been updated with these assumptions.
10	Sabine Ellis, City of Mesa	This is acceptable but driveway A must be constructed with a pork chop median to physically prevent left turns exiting the driveway. Appropriate signing/stripping needs to be provided onsite (arrows, no left turns signs near and far side). Update civil plans accordingly.	A pork chop is included in the updated civil plans.

11	Sabine Ellis, City of Mesa	Need to include traffic generated by new American Leadership Academy that is going in on the SEC of Pecos and Sossaman, will email approved study to EPS. This school is scheduled to open in 2022 and will affect the surrounding roadway network.	ALA traffic has been included, although assumptions were made since the ALA TIA didn't analyze the intersectin of 80th Street and Pecos Road.
12	Sabine Ellis, City of Mesa	What is the current plan for start and release times? How does it coincide with school on other side?	The proposed K-8 will have its primary drop-off and pick-up times from 8:00 AM to 3:30 PM. The existing 9-12 will become a high school only and have its its primary drop-off and pick-up times from 7:30 AM to 3:00 PM.
13	Sabine Ellis, City of Mesa	This is great language but what is the intent of this sentence? A 15-mph school crosswalk is not appropriate for Germann Rd and does not make sense for 80th Street.	This sentence has been removed. It was accidentally left in the report from another school study for a public school within a neighborhood.
14	Sabine Ellis, City of Mesa	Per our TIS guidelines, the traffic generated by the school would require that the current MAG year be used for a horizon, 2040. Given the massive growth that is to come with the surrounding area, we're ok going 5 years beyond full build-out. So, 2030.	The TIA has been updated to include horizon year 2030.
15	Sabine Ellis, City of Mesa	Need to include Pecos and Sossaman in analysis due to the significant traffic that is sent through this intersection. Will provide current signal timing to EPS. OK to assume that EB & WB dedicated right turn lanes will be built at Pecos & Sossaman by 2022.	This intersection has been added to the analysis.
16	Sabine Ellis, City of Mesa	Correct typo, 'one'	Text has been updated.
17	Sabine Ellis, City of Mesa	Do these align with the school start and release times?	At the time of the original study, the drop-off time for school was not finalized. Therefore, the peak of adjacent street was utilized for the existing conditions for a conservative approach. The report has been updated to reflect the existing traffic from 7:30 AM to 8:30 AM. The PM peak aligns at 3:00 PM to 4:00 PM.
18	Sabine Ellis, City of Mesa	Include Lexington Academy in analysis.	The Lexington Academy will be offset by 30 minutes in the morning and by an hour in the afternoon. Friday is early release at noon. However, it has been added to the trip generation and site traffic in the analysis to reflect maximum occupancy. Please note, that for school analyses, the PHF for the relevant movements at the driveways and adjacent intersections is adjusted to reflect a peak period (15 to 20 minutes) of the school traffic. Therefore, assuming that all students arrive within the same timeframe in this analysis is a conservative approach.

1st Review Comments

Project: Heritage Gateway Charter School
Prepared by: EPS Group
Date of Report: 8/19/2021



Reviewer: Town of Queen Creek
Date of Review: 9/24/2021

#	Reviewer:	Review Comment:	EPS Group Response:
1	Marshall Riegall, Town of Queen Creek	The Town has received and reviewed and concurs with all of the City of Mesa comments. Please review the attached document.	Noted.
2	Marshall Riegall, Town of Queen Creek	The following Town of Queen Creek Intersections shall also be analyzed in the next submittal: Ellsworth Road at Germann Road Sossaman Rd at Rittenhouse Road	A comment resolution meeting with the Town of Queen Creek determined that these intersections will not be required, since they are sufficiently distant from the development site.
3	Marshall Riegall, Town of Queen Creek	Utilize Growth Rate: 5% until 2025 and 2% for beyond 2025	Analysis updated.
4	Marshall Riegall, Town of Queen Creek	The more conservative value of the City of Mesa queue calculation versus the Town of Queen creek queue calculation of The minimum queue length provided onsite shall be 4.3 feet per student based on the school's maximum enrollment at build-out. Additionally, the site shall provide a contingency circulation plan that accommodates a high demand queue length of 5.5 feet per student based on the school's maximum enrollment at build-out shall be used.	The school queue being requested is based on the City of Peoria's requirements, which have not been adopted by the Town of Queen Creek. Therefore, the current Queen Creek standards are utilized, which is 0.15 vehicles per student. When utilizing dual lanes, the site plan provides for 4,095 feet of queuing on-site, which exceeds the calculated required queue of 3,600 feet. The provided on-site queueing results in a rate of 4.26 feet per student or 0.17 vehicles per student. A contingency plan includes staggering the 6-8 grades from K-5 or looping around the parking in the northeast corner of the site.
5	Marshall Riegall, Town of Queen Creek	Improvements are not analyzed for the intersection of Sossaman Rd and Germann Rd. even though this report shows 30% of the site traffic is anticipated at this intersection and improvements to mitigate impacts due to the site generated traffic shall be accounted for and provided by the project.	The Sossaman Road/Germann Road intersection is complicated with the proximity of a canal and the railroad crossing. Per the comment resolution meeting with the Town of Queen Creek, there is no requirement for the school to improve this intersection.
6	Marshall Riegall, Town of Queen Creek	At the intersection of Germann Rd at 80th Street, the intersection improvements, provided by the project, shall include turn lanes (EB left-turn lane, and WB right-turn lane), and the traffic signal shall be installed and operational for the opening of the school in 2022. Since EB left-turn queues longer than 250 feet, indicated by this report, are anticipated during the ingress/egress hours, a minimum of 350 feet of EB left-turn storage is required.	The Town is amenable to Heritage contributing their share (25%) toward a new signal as an in-lieu payment. The Town will take the lead on the development of the traffic signal. The school is providing improvements adjacent to their site.
7	Marshall Riegall, Town of Queen Creek	WB right-turn lane: While a minimum of 350 feet of storage is required along Germann Road, indicated by this report, the Town requires a continuous right turn bay providing for access into schools fronting major arterials or the addition of a 10 feet shoulder along the property frontage along Germann Road, thus assisting with additional storage at this location.	When determining minimum storage length for right-turn lanes, the AASHTO Green Book method is not ideal for free flowing right-turn lanes and those at signals (refer to AASHTO for further information). The Synchro 95th percentile queue is more appropriate. School traffic will not be accessing the site from Germann Road, and there is sufficient queuing on-site. A dedicated right-turn lane with 200 feet of storage is provided on 80th Street at the site driveway where vehicles will be entering. A dedicated right-turn lane is provided at the site driveway on Germann Road, and a separate right-turn lane is provided on Germann Road at 80th Street.
8	Marshall Riegall, Town of Queen Creek	Coordination with the developer on the southwest corner of Germann Rd and 80th St/196th St is required to eliminate any offset intersection alignments.	The development team understands the Town's concerns and relayed that City of Mesa standards are to be followed and the roadway will be centered on the mid-section line. The proposed improvements will not cause a negative offset condition.