

TRAFFIC IMPACT STUDY

WAQ1 Delivery Station
7300 Meridian Pl NW
Albuquerque, NM

October 2020



Presented to:
City of Albuquerque – Transportation Development Section

Prepared by:
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Albuquerque, NM 87110

HT#J1D002G1
Recieved 10/12/2020

Executive Summary

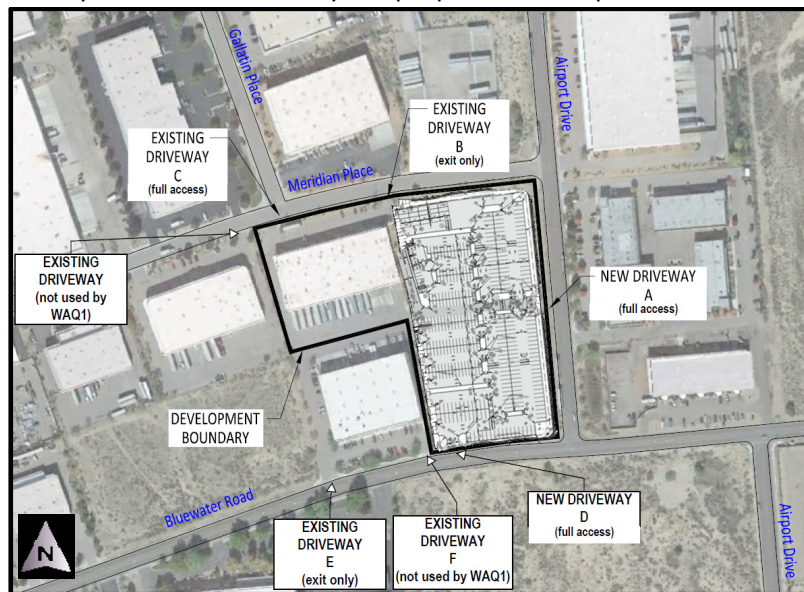
The purpose of this study is to evaluate the transportation conditions before and after implementation of the proposed WAQ1 Delivery Station Development and determine the impact of the development on the adjacent transportation system. The recommendations of this study will provide measures to mitigate the impact of the development of the facility plan on critical intersections. This study is prepared to meet the requirements of the City of Albuquerque, Transportation Development Section.

Planned to be constructed in one phase, the proposed WAQ1 Delivery Station Development is a delivery facility utilizing an existing 45,000 square foot building (located on Lot 13 Atrisco Business Park) with plans to expand the adjacent two lots (lot 11 and 12 of the Atrisco Business Park) on 5.7-acre empty lot into a paved parking lot. The development site is located at the intersection of Meridian Place and Airport Drive within the city limits of Albuquerque, NM. In conjunction with the scoping meeting of March 5, 2020 the study area includes the following intersections:

- | | |
|--|---|
| 1. Unser Blvd. / Los Volcanes Rd. | 6. Airport Dr. / Meridian Pl. |
| 2. Unser Blvd. / Bluewater Rd. | 7. Los Volcanes / Airport Dr. |
| 3. Coors Blvd. / Bluewater Rd. | 8. Los Volcanes / Gallatin Pl. |
| 4. Coors Blvd. / Los Volcanes Rd. | 9. Los Volcanes / Silver Creek Rd. |
| 5. Bluewater Rd. / Airport Dr. (north) | 10. Bluewater Rd. / Airport Dr. (south) |

The WAQ1 Delivery Station Development is expected to generate a total of 1,230 trips per day. The majority of the trips will occur within typical morning (7AM – 9AM) peak hours but in the evening will return prior to the evening (4PM – 6PM) peak periods of travel. Due to alternating shift schedules, employee traffic is expected to enter and exit the site prior to both the AM and PM Peak hours, leaving only delivery trips to be included in this study. During the weekday AM peak hour period, it is anticipated that it will generate approximately 141 entering trips and 94 exiting trips. During the weekday PM peak hour, due to the returning of most of the deliveries ahead of the PM Peak Hour it is anticipated that it will generate approximately 18 entering trips and 18 exiting trips.

The proposed delivery station facility will be accessed by three existing driveways, and two proposed driveways, shown below. Driveways A, C, and D are proposed to be full access, while Driveways B and E are proposed to be exit only driveways. Driveway E has a reciprocal easement with adjoining lots (13 & 14) which will allow the traffic to exit the WAQ1 Delivery Station. Driveway F will not be used by the proposed development.



Capacity analysis results of the worst-case approach are included in the following tables:

TABLE 1: 2020 CAPACITY ANALYSIS FOR ALL INTERSECTIONS

Year	Study Intersections	Worst Case Approach LOS and Delay						INTERSECTION LOS			
		NO BUILD			BUILD			NO BUILD		BUILD	
		Worst Case APPROACH	Delay	LOS	Worst Case APPROACH	Delay	LOS	Delay	LOS	Delay	LOS
2020 AM	Intersection 1 - SIGNAL	EBL	64.5	E	EBL	56.3	E	15.7	B	15.2	B
	Intersection 2 - SIGNAL	WBR	55.3	E	WBR	56.8	E	15.3	B	17.2	B
	Intersection 3 - SIGNAL	SBR	37.8	D	SBR	38.2	D	23.9	C	24.1	C
	Intersection 4 - SIGNAL	EBL	55.9	E	EBL	56.3	E	4.5	A	4.7	A
	Intersection 5	SB	13.4	B	SB	15.4	C	-	-	-	-
	Intersection 6	EB	10.1	B	EB	10.3	B	-	-	-	-
	Intersection 7	NB	11.3	B	NB	11.8	B	-	-	-	-
	Intersection 8	SB	19.6	C	SB	25.3	D	-	-	-	-
	Intersection 9	NB	14.3	B	NB	15.2	C	-	-	-	-
	Intersection 10	NB	13.6	B	NB	14.3	B	-	-	-	-
2020 PM	Intersection 1 - SIGNAL	WBR	47.9	D	WBR	47.6	D	19.9	B	20.0	C
	Intersection 2 - SIGNAL	WBR	59.7	E	WBR	59.5	E	13.1	B	13.0	B
	Intersection 3 - SIGNAL	WBT	42.9	D	WBT	42.9	D	22.4	C	22.5	C
	Intersection 4 - SIGNAL	EBL	59.3	E	EBL	60.2	E	6.9	A	7.0	A
	Intersection 5	SB	11.6	B	SB	11.7	B	-	-	-	-
	Intersection 6	EB	9.0	A	EB	9.1	A	-	-	-	-
	Intersection 7	NB	10.7	B	NB	10.8	B	-	-	-	-
	Intersection 8	NB	28.1	D	NB	30.5	D	-	-	-	-
	Intersection 9	NB	11.4	B	NB	11.5	B	-	-	-	-
	Intersection 10	NB	12.6	B	NB	12.7	B	-	-	-	-

TABLE 2: 2030 CAPACITY ANALYSIS FOR ALL INTERSECTIONS

Year	Study Intersections	Worst Case Approach LOS and Delay						INTERSECTION LOS			
		NO BUILD			BUILD			NO BUILD		BUILD	
		Worst Case APPROACH	Delay	LOS	Worst Case APPROACH	Delay	LOS	Delay	LOS	Delay	LOS
2030 AM	Intersection 1 - SIGNAL	EBL	53.9	D	EBL	47.3	D	16.4	B	17.5	B
	Intersection 2 - SIGNAL	NBT	92.2	F	NBT	94.8	F	63.6	E	64.0	E
	Intersection 3 - SIGNAL	SBR	38.5	D	SBR	39.3	D	25.0	C	25.4	C
	Intersection 4 - SIGNAL	EBL	56.2	E	EBL	56.2	E	4.7	A	5.0	A
	Intersection 5	SB	17.4	C	SB	24.1	C	-	-	-	-
	Intersection 6	EB	11.1	B	EB	11.5	B	-	-	-	-
	Intersection 7	NB	13.5	B	NB	14.7	B	-	-	-	-
	Intersection 8	SB	42.1	E	SB	49.2	E	-	-	-	-
	Intersection 9	NB	18.8	C	NB	20.6	C	-	-	-	-
	Intersection 10	NB	15.5	C	NB	16.6	C	-	-	-	-
2030 PM	Intersection 1 - SIGNAL	WBR	45.8	D	WBR	45.6	D	24.6	C	25.5	C
	Intersection 2 - SIGNAL	WBR	58.9	E	WBR	58.7	E	15.2	B	14.5	B
	Intersection 3 - SIGNAL	EBL	51.9	D	EBL	52.5	D	24.5	C	24.6	C
	Intersection 4 - SIGNAL	EBL	59.9	E	EBL	59.9	E	7.2	A	7.3	A
	Intersection 5	SB	13.4	B	SB	13.7	B	-	-	-	-
	Intersection 6	EB	9.3	A	EB	9.4	A	-	-	-	-
	Intersection 7	NB	12.2	B	NB	12.4	B	-	-	-	-
	Intersection 8	NB	49.8	E	NB	52.6	F	-	-	-	-
	Intersection 9	NB	13.0	B	NB	13.1	B	-	-	-	-
	Intersection 10	NB	13.6	B	NB	13.7	B	-	-	-	-

In summary, the 2020 and the 2030 analysis determined some deficiencies in the adjacent transportation system however, they occur with both the No Build and Build condition. The delays experienced with the Build condition have a minimal increase when compared to the No Build condition. The analysis demonstrated that the proposed WAQ1 Delivery Station will have minimal impacts on the adjacent transportation system and require very minor improvements mentioned below.

Findings & Recommendations:

1. Driveway D will need to be designed further east to maintain a required 100 foot spacing from existing Driveway F while also maintaining 100 foot spacing from the Airport Drive/Bluewater intersection.
2. Design and construction of the proposed WAQ1 Delivery Station shall maintain adequate sight distances at proposed driveways.

**Meridian Place Development
(SW Corner of Meridian Pl. / Airport Dr.)
(Albuquerque, NM)
Traffic Impact Study**

Contents

Executive Summary.....	ii
Introduction	2
Description of Proposed Development.....	3
Study Area Conditions.....	4
Analysis of Existing Conditions.....	6
Analysis of Implementation Year and Horizon Year Conditions	8
Traffic Projections	8
Traffic Analysis	18
Impact Assessment	22
Access Design Specifications	22
Summary of Deficiencies, Anticipated Impacts, and Recommendations	24

WAQ1 Delivery Station Development Traffic Impact Study

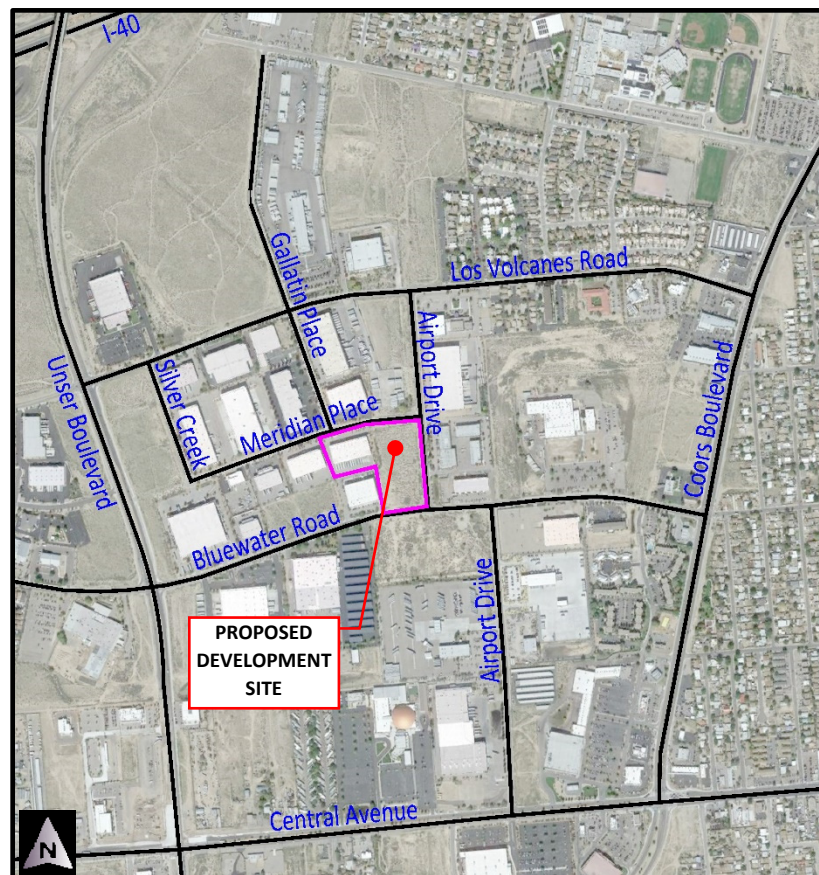
Introduction

A preliminary scoping meeting was held with Mathew Grush, Senior Engineer with the City of Albuquerque on March 5th, 2020 at the City of Albuquerque offices. During this meeting the City's Traffic Impact Study Form was discussed and completed (see appendix A). It was determined at the completion of the form that a Traffic Impact Study would be required for the WAQ1 Delivery Station Development.

The purpose of this study is to evaluate the transportation conditions before and after implementation of the proposed WAQ1 Delivery Station Development and determine the impact of the development on the adjacent transportation system. If needed the recommendations of this study will provide measures to mitigate the impact of the development of the facility plan on critical intersections to bring the network back to the predevelopment level of service. This study meets the requirements of the City of Albuquerque, Transportation Development Section.

The proposed development is located at the intersection of Meridian Place and Airport Drive in Albuquerque, NM. If the property were to develop significantly different than the proposed plan considered in this report such that the number of generated trips is significantly greater, then an update to this study may be required by the City the Albuquerque.

Following is a vicinity map depicting the location of the proposed project:



Meridian Place Development – Vicinity Map

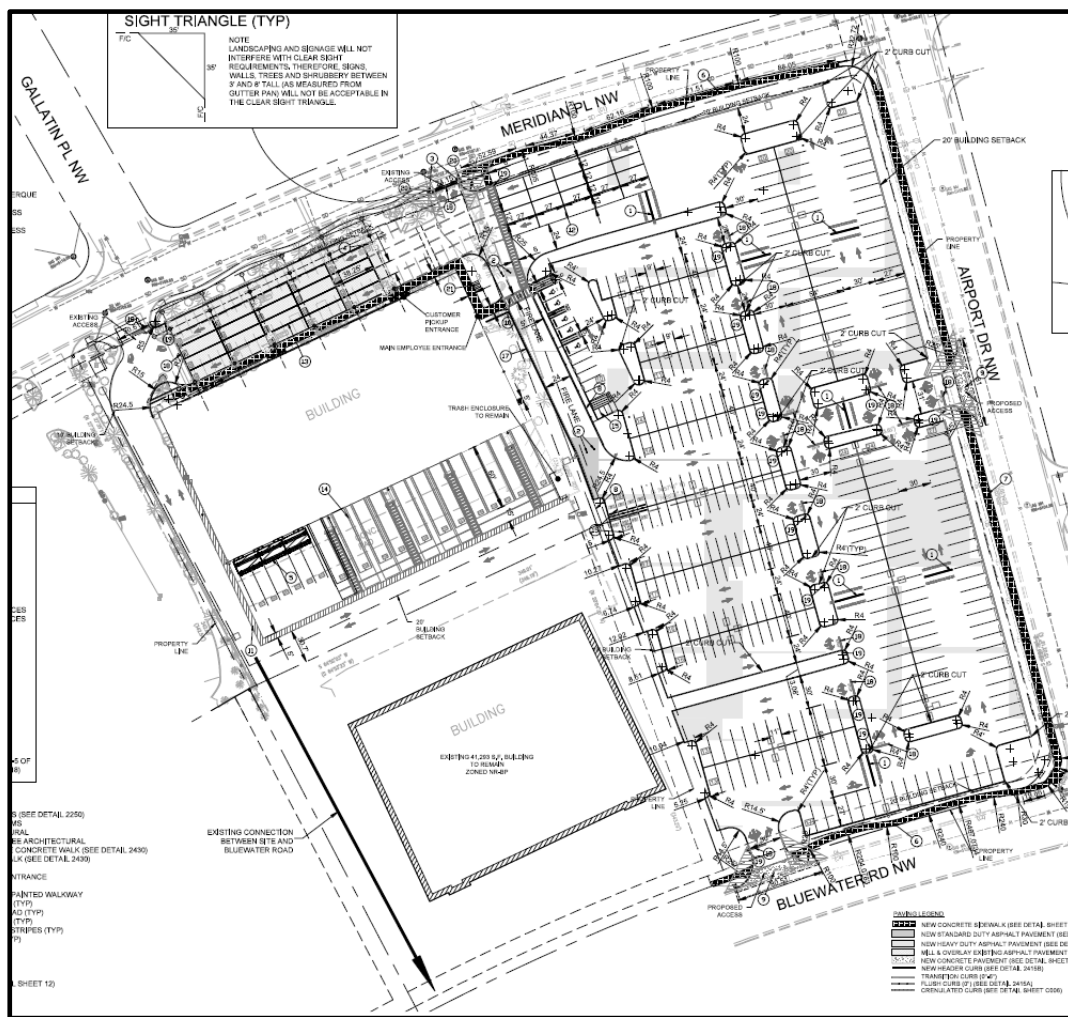
Description of Proposed Development

The proposed WAQ1 Delivery Station Development is a delivery facility utilizing an existing 45,000 square foot building (located on Lot 13 Atrisco Business Park) with plans to develop the adjacent two lots (lot 11 and 12 of the Atrisco Business Park) on 5.7-acre empty lot into a paved parking lot. The project lies within the city limits of Albuquerque, NM. The development site is located between Unser Boulevard and Coors Boulevard, both of which provide direct access to interstate I-40 located about 0.75 north of the site. Access to interstate I-25 via I-40 is located about 5 miles from the site. While Unser Boulevard and Coors Boulevard are owned by the State, they are maintained by the City of Albuquerque. Therefore, the project will be required to comply with the requirements of the City of Albuquerque with regard to the overall development, and with the requirements of the New Mexico Department of Transportation with regard to possible transportation issues at Unser Boulevard, Coors Boulevard, and I-40.

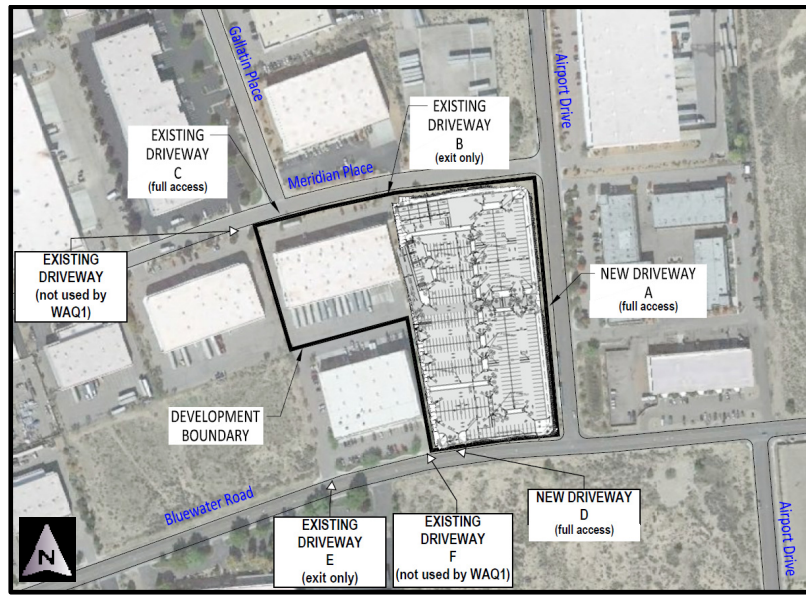
This project will be constructed in one phase. This study will analyze an implementation year of 2020 and a horizon year of 2030.

The proposed delivery station facility will be accessed by three existing driveways, and two proposed driveways. Driveways A, C, and D are proposed to be full access, while Driveways B and E are proposed to be exit only driveways. Driveway E has a reciprocal easement with adjoining lots (13 & 14) which will allow the traffic to exit the WAQ1 Delivery Station. Driveway F will not be used by the proposed development.

Following is the proposed site development plan.



Following is the location of the existing and proposed driveway (access) locations.



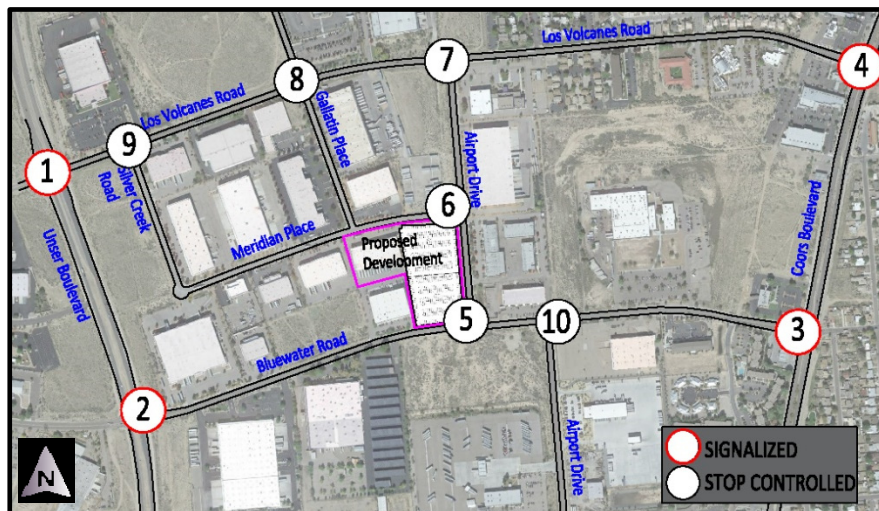
Driveway (access) Locations

Study Area Conditions

During the study's scoping meeting it was determined that the study area would include the following list of intersections to be analyzed in the Traffic Impact Study:

Intersections:

- | | |
|-----------------------------------|------------------------------------|
| 1. Unser Blvd. / Los Volcanes Rd. | 6. Airport Dr. / Meridian Pl. |
| 2. Unser Blvd. / Bluewater Rd. | 7. Los Volcanes / Airport Dr. |
| 3. Coors Blvd. / Bluewater Rd. | 8. Los Volcanes / Gallatin Pl. |
| 4. Coors Blvd. / Los Volcanes Rd. | 9. Los Volcanes / Silver Creek Rd. |
| 5. Bluewater Rd. / Airport Dr. | 10. Bluewater Rd. / Airport Dr. |



This scope of study is based on the assumption that the parcels in question would be permitted as warehousing or wholesale and distribution center. While the definition of "wholesale and distribution center" specifies that it does not

include “direct sale to the general public” City planning staff indicated that the use could include distribution to ultimate consumers.

There are two land development projects in the area which are incorporated in the background traffic model for this study: BEK Development is a food distribution center located at the northeast corner of Los Volcanes Rd. and Unser Blvd, while Coors Park & Sell is a car sales lot located along Coors Blvd. north of Los Volcanes Rd.

Identified in the study completed for the BEK Development, it appears that there is a City of Albuquerque C.I.P. project which plans to widen Unser Blvd. to provide three southbound lanes from Los Volcanes Rd. to Central Ave., but scheduling of the construction is unknown at this time. Additionally, the development of the BEK development provided additional improvements to the network.

This project is served by public transit services in the area; specifically Routes #155, #66, #766 and #77. Route #155 runs along Coors Boulevard, with a bus stop located a little less than half a mile east of the site. Routes #66, #766, and #77 run along Central Avenue, with a bus stop located just over half a mile south of the site. No rail or park-n-ride services are located within the vicinity of the site. Drivers should be able to utilize public transit as an alternative mode of transportation to and from the site.

There are a variety of mixed use of pedestrian facilities in the project area with intermittent sidewalks located along Meridian Place, Bluewater Road, Airport Drive, and Los Volcanes Road. Unser Boulevard and Coors Boulevard have 10 ft wide paved multiuse trails. Central Avenue, Bluewater Road and Los Volcanes Road have designated bike lanes. Airport Drive is a bike route in which cars and bikes share the road.

The transportation network in the vicinity of the site features a combination of collectors, arterials and freeway facilities. The site is located between Unser Boulevard and Coors Boulevard, both of which provide direct access to interstate I-40 located about 0.75 miles north of the site. Unser and Coors are both 6-lane divided roads with 45 MPH speed limits. Access to interstate I-25 via I-40 is located about 5 miles from the site. The Albuquerque International Sunport is located about 10 miles south east of the site. The Double Eagle II Airport is located about 10 miles north west of the site. Central Avenue is a 4-lane divided road with a speed limit of 40 MPH. Bluewater and Los Volcanes Road are 2-lane divided roads with speed limits of 40 MPH and 35 MPH respectfully. Airport Drive and Meridian Place are 2-lane undivided roads with speed limits of 25 MPH.

Analysis of Existing Conditions

Due to the COVID-19 social distancing and travel restrictions set in place by the Governor of New Mexico; current traffic count data was not allowed to be collected as current traffic patterns are not representative of actual conditions. To address this, available peak hour turning movement counts from the BEK Development Study were used (see below). For intersections not available in the study, available peak hour approach volumes from varying years were downloaded from the Transportation Analysis & Querying Application provided online by the Mid Region Council of Government's (MRCOG). Growth rates of each approach were determined using 10-year historical Traffic Flow Maps, also provided by MRCOG (See page 11 and Appendix B). Adjustments to the peak hour approach volumes were then made to bring all count data, including data from the BEK Study, to current 2020 volumes.

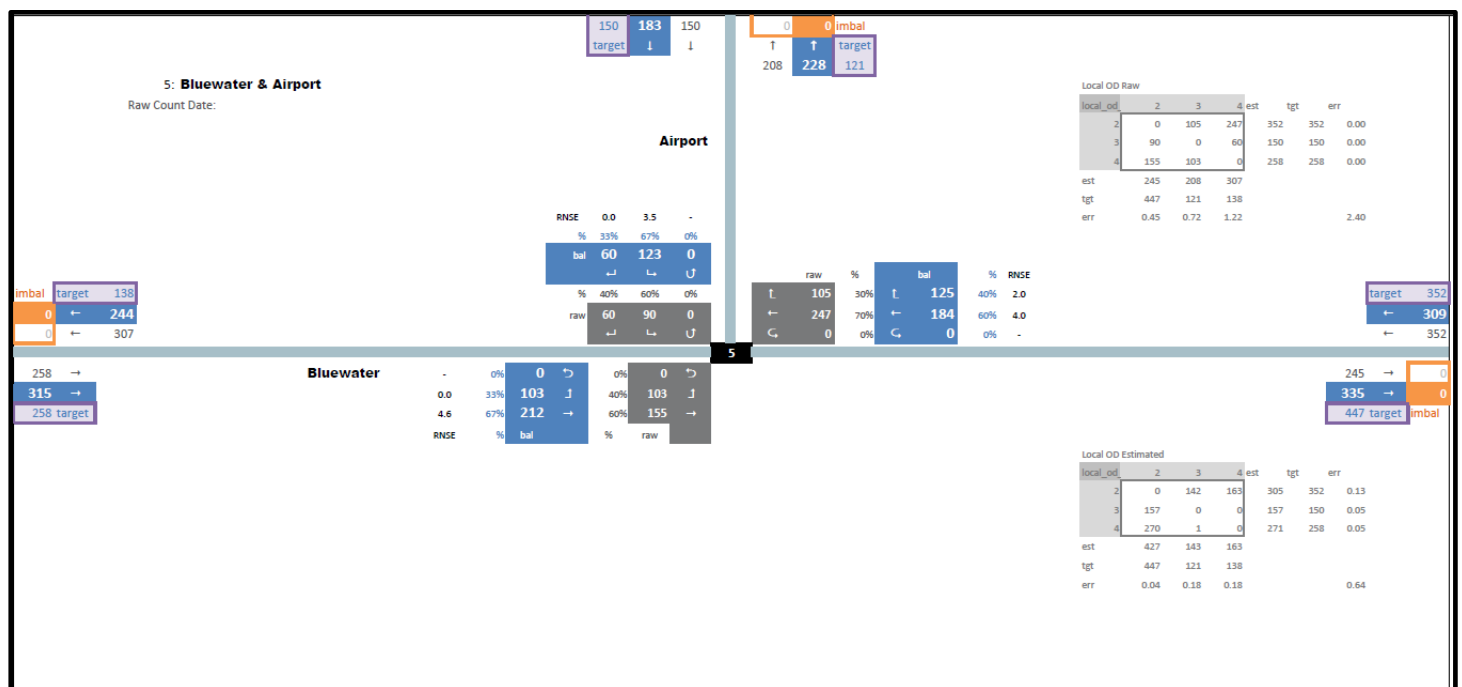
**Peak Hour Data from
BEK Study**

Intersection ID	Intersection
1	Unser/Los Volcanes
2	Unser/Bluewater
3	Coors/Bluewater
4	Coors/Los Volcanes
8	Los Volcanes/Gallatin

**Peak Hour Data from
MRCOG**

Intersection ID	Intersection
5	Bluewater/Airport (N)
6	Airport/Meridian
7	Los Volcanes/Airport
9	Los Volcanes/Silver Creek
10	Bluewater/Airport (S)

Using estimation techniques as well as engineering judgement, MRCOG peak hour approach volumes were separated into turning movements. Due to the discrepancies in traffic volumes using this method, a volume balancing model based on the FRATAR method was used to create a logical and consistent set of volumes to be used for this study. An example of the spreadsheet used for balancing volumes is shown below. The input volumes are shown in grey and the balanced volumes are shown in blue. The remaining balancing sheets for each intersection can be found in Appendix C.



Peak hour periods for each approach roadway varied within one to two hours from each other. Using the various peak hour approach volumes for each intersection provides a conservative approach to this study.

Since the implementation year is expected less than one year into the future, an existing conditions analysis was not conducted because the NO BUILD conditions will closely represent the existing conditions.

As the unsignalized intersections in the project study area are all classified as Collectors, analysis of these intersections will need to meet the requirements of the City of Albuquerque Development Process Manual Table 7.5.88 (Desired Level of Service by Location and Corridor Type) as follows:

TABLE 7.5.88 Desired LOS by Location and Corridor Type							
Functional Classification & Roadway Type	ABC Comp Plan Center Type						
	Transit Station Area	Downtown	Urban Center	Activity Center	Village Center	Employment Center	Outside Center
Premium Transit	E-F	E-F	E-F	E-F	E-F	E-F	E-F
Major Transit	E	E-F	E	E	D-E	D-E	D-E
Multi-modal	E	E	E	E	D-E	D-E	D-E
Commuter	E	E	D-E	D-E	D-E	D-E	D
Other Arterial	E	E	E	D-E	D-E	D-E	D
Minor Arterial	E	E	D-E	D-E	D-E	D	D
Collector	E	D-E	D	D	C-D	C-D	C-D

As the signalized intersections in the project study area are each classified as Principal Arterials and owned by the NMDOT, analysis will need to meet the requirement of the NMDOT State Access Management Manual Table 15.C-1 (Minimum Acceptable Level of Service Standards) as follows:

Table 15.C-1 Minimum Acceptable Level of Service Standards								
Facility Type ¹	Access Categories (see Sub-Section 10.D)							
	UINT	UPA	UMA	UCOL	RINT	RPA	RMA	RCOL
Freeway Sections	D	-	-	-	C	-	-	-
Ramp Junctions	D	- ²	- ²	- ²	C	- ²	- ²	- ²
Weaving Areas	D	- ²	- ²	- ²	C	- ²	- ²	- ²
Multi-lane Highways	-	D	D	C	-	C	C	B
Two-Lane Highways	-	D	D	C	-	C	C	B
Signalized Intersections	-	D	D	D	-	C	C	C
Unsignalized Intersections	-	D	D	D	-	D	D	C

Based on the above two tables, unsignalized and signalized intersections along these roads should be Level-of-Service (LOS) D or better.

Analysis of Implementation Year and Horizon Year Conditions

Traffic Projections

This study assumes that the exterior improvements to existing lot 13 and new parking fields on lots 11 and 12 will be implemented in one phase with an implementation year of 2020.

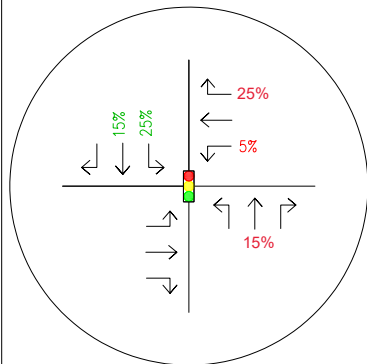
Projected trips were determined based on the local trip generation data provided by the client. The WAQ1 Delivery Station Development is expected to generate a total of 1,230 trips per day. The majority of the trips will occur within typical morning (7AM – 9AM) peak hours, but in the evening will return prior to the evening (4PM-6PM) peak periods of travel. Due to alternating shift schedules, employee traffic is expected to enter and exit the development prior to both the AM and PM Peak hours, leaving only delivery trips to be included in this study. During the weekday PM peak hour, due to the returning of most of the deliveries ahead of the PM Peak Hour it is anticipated that it will generate approximately 18 entering trips and 18 exiting trips.

Peak Period	Duration	Total Trips				
		Entering		Exiting		Total
Morning Peak	8:00 AM - 9:00 AM	60%	141	40%	94	235
Evening Peak	4:00 PM - 5:00 PM	50%	18	50%	18	36

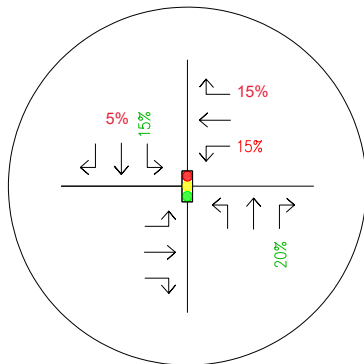
Trip assignments are first made on a percentage basis derived from data established in the trip distribution determination process and logical routing to and from the proposed development. Those percentages are then applied to the projected trips to determine individual traffic movements. Percentage trip assignments and distributions for these trips are shown on the following pages. It is assumed that the assignments of trips are the same for the AM peak hour as the PM peak hour. No adjustments for pass-by trips on this project were applied.

Because trips being studied for the development account for delivery vans and truck traffic dispersing throughout the City, it is expected that 60% of traffic will access and depart the development using routes north of its location, including Interstate 40, Unser Boulevard, and Coors Boulevard. 40% of the traffic is expected to access and depart the development using routes south of its location including Unser Boulevard, Coors Boulevard, and with a smaller percentage using Central Avenue.

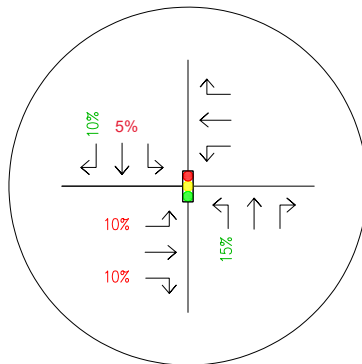
Being constructed west of the development along Atrisco Vista Boulevard is a larger distribution facility that will feed trips to the WAQ1 Delivery Station. Most trips from this facility will access and depart the delivery station using Interstate 40. It is estimated that about 5% of trips will travel to and from this site using Central Avenue. In total this adds 7 vehicles traveling along Central Avenue to the delivery station in the AM peak hour and 1 vehicle in the PM peak hour. Exiting from the delivery station are 5 vehicles in the AM peak hour and 1 vehicle in the PM peak hour. It is estimated that the low volume of these trips will have little to no impact to the intersections of Central and Unser, Central and 98th, and Central and Atrisco Vista.



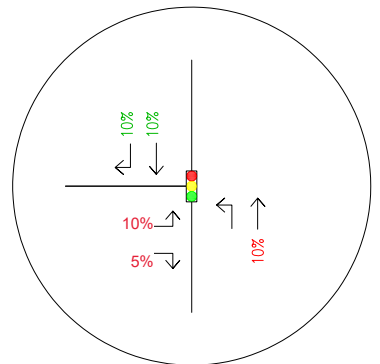
1: UNSER AND LOS VOLCANES



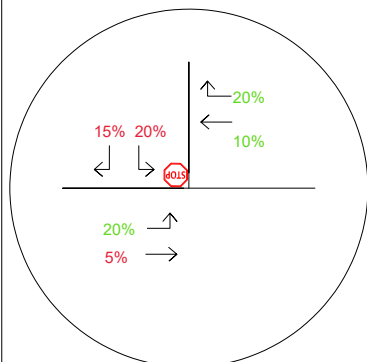
2: UNSER AND BLUEWATER



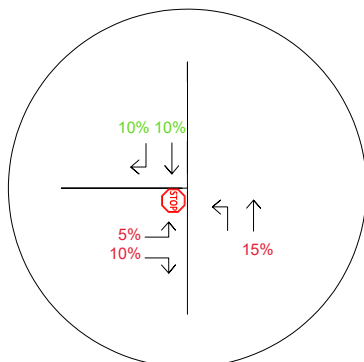
3: COORS AND BLUEWATER



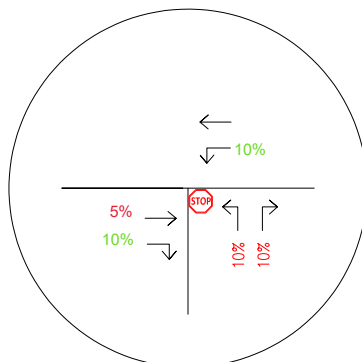
4: COORS AND LOS VOLCANES



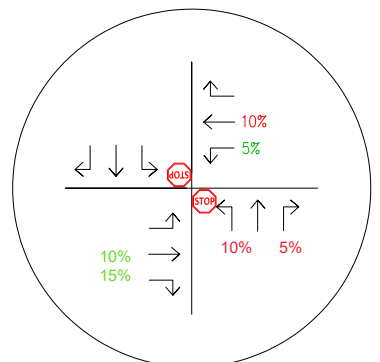
5: BLUEWATER AND AIRPORT



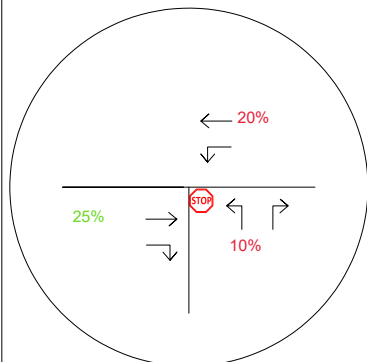
6: AIRPORT AND MERIDIAN



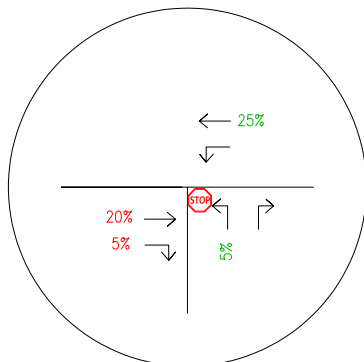
7: LOS VOLCANES AND AIRPORT



8: LOS VOLCANES AND GALLATIN



9: LOS VOLCANES AND SILVER CREEK



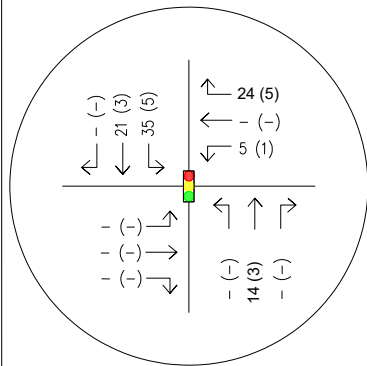
10: BLUEWATER AND AIRPORT

TRIP ASSIGNMENTS - %

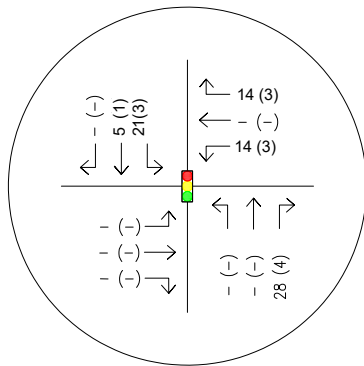
LEGEND:

XX % - ENTERING SITE
XX % - EXITING SITE

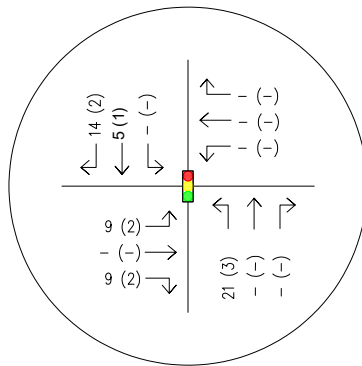
→ → → } LANE CONFIGURATION



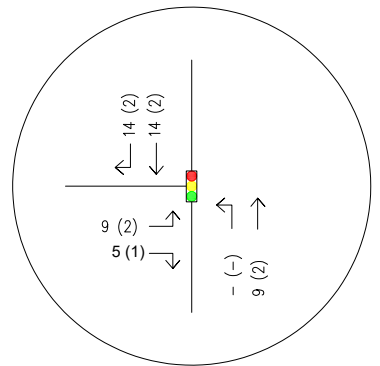
1: UNSER AND LOS VOLCANES



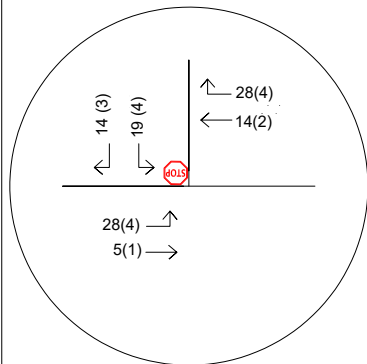
2: UNSER AND BLUEWATER



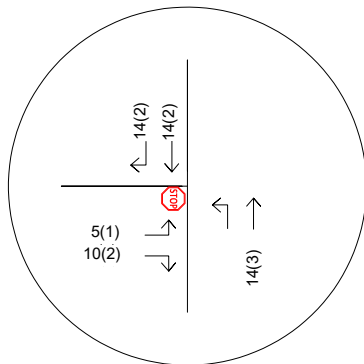
3: COORS AND BLUEWATER



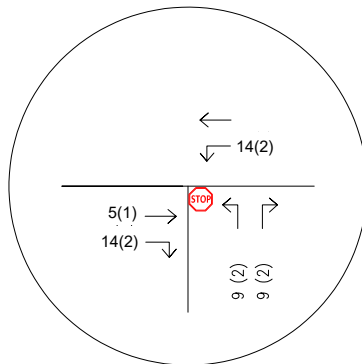
4: COORS AND LOS VOLCANES



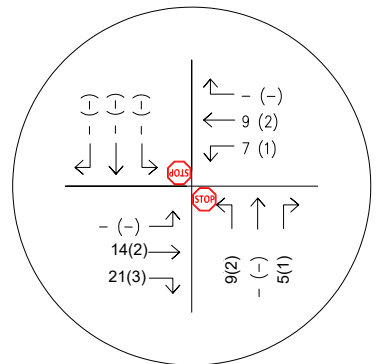
5: BLUEWATER AND AIRPORT



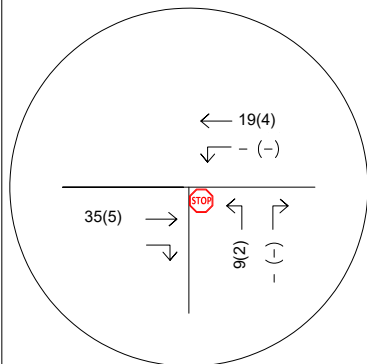
6: AIRPORT AND MERIDIAN



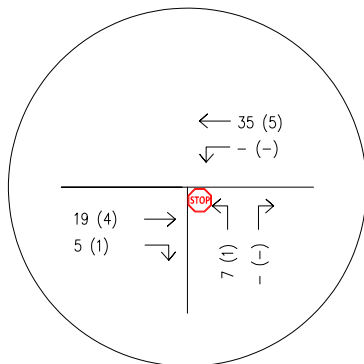
7: LOS VOLCANES AND AIRPORT



8: LOS VOLCANES AND GALLATIN



9: LOS VOLCANES AND SILVER CREEK



10: BLUEWATER AND AIRPORT

TRIP ASSIGNMENTS - #'s

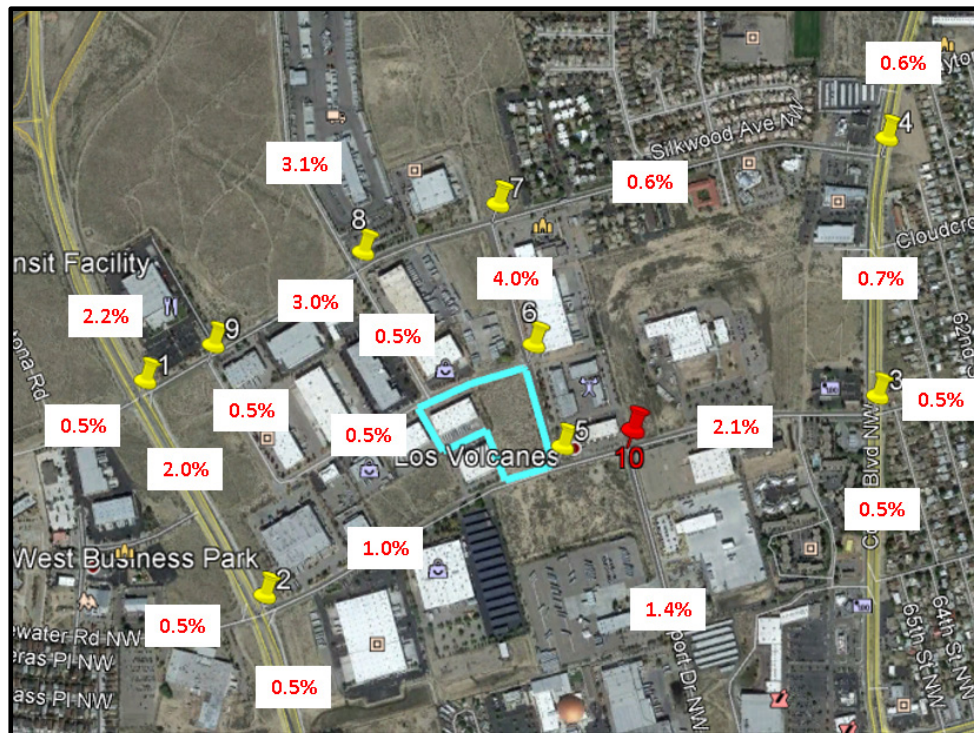
LEGEND:

XX (XX) - AM (PM) PEAK HOUR VOLUME

- (-) →
 - (-) →
 - (-) →

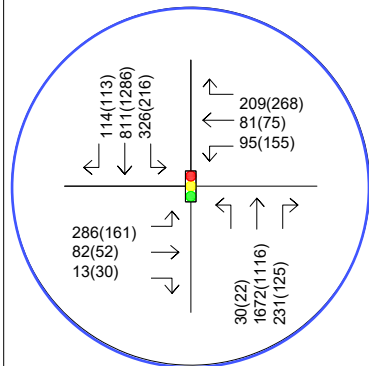
— LANE CONFIGURATION

Following City of Albuquerque procedures, background traffic growth rates (shown below) were considered for each individual approach to an intersection that was targeted for analysis based on data from the 2009 through 2018 Traffic Flow maps prepared by the Mid-Region Council of Governments. The data from those years for each approach was plotted on a graph and linear “regression tend line” calculated using the equation format $y=mx+b$. The growth rate was determined by calculating the average volume increase per year during the time period considered and dividing that volume into the most recent AWDT used in the analysis from which future volumes will be calculated. The rate of growth of that trend line was utilized as the annual growth rate for each approach if that calculated rate appeared feasible. However, when a roadway segment considered in this analysis indicated either an inconsistent or negative growth trend, then the growth rate was adjusted according to the notes shown or considered to be a minimum 0.5%. Historical Growth Rate Graphs with linear regression trend lines are shown in Appendix B. The growth rate utilized for each approach to an intersection is printed at the top of the Turning Movement sheets for each intersection, see Appendix C.

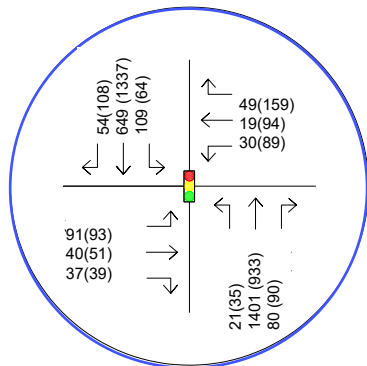


Background Traffic Growth Rates by Approach

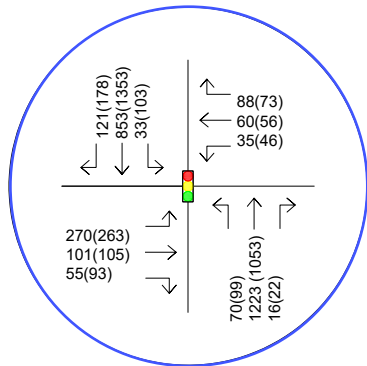
The trip generation, trip distribution and trip assignments were utilized along with the calculated background traffic volumes and the historical traffic growth rates to determine the Implementation and Horizon year NO BUILD and BUILD volumes. Implementation year and Horizon year AM Peak Hour and PM peak Hour NO BUILD and BUILD volumes are displayed on the following pages:



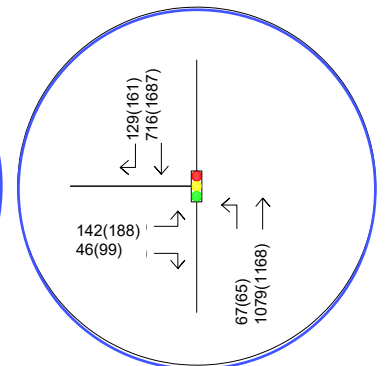
1: UNSER AND LOS VOLCANES



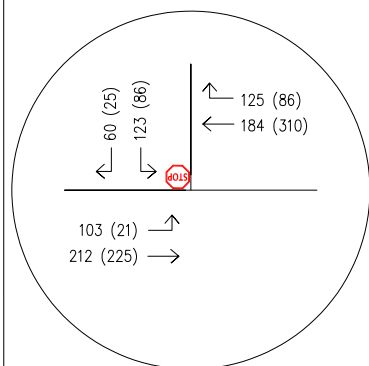
2: UNSER AND BLUEWATER



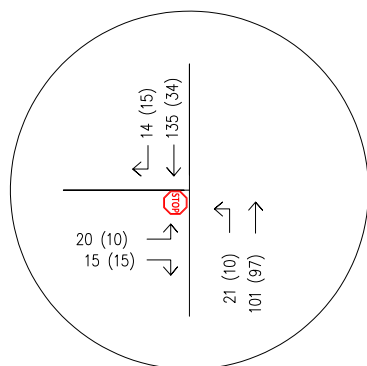
3: COORS AND BLUEWATER



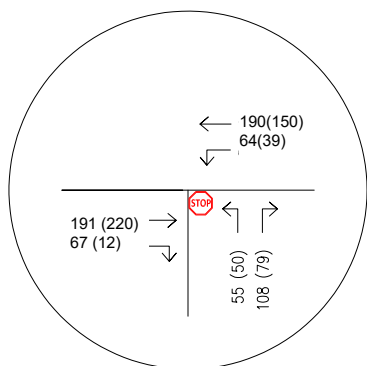
4: COORS AND LOS VOLCANES



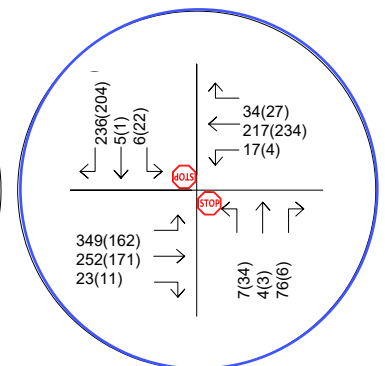
5: BLUEWATER AND AIRPORT



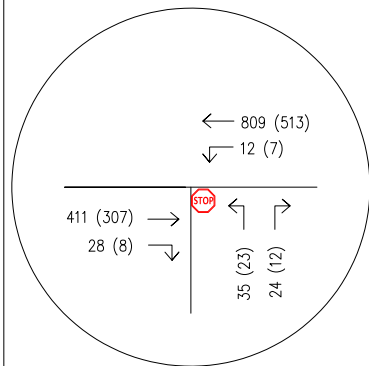
6: AIRPORT AND MERIDIAN



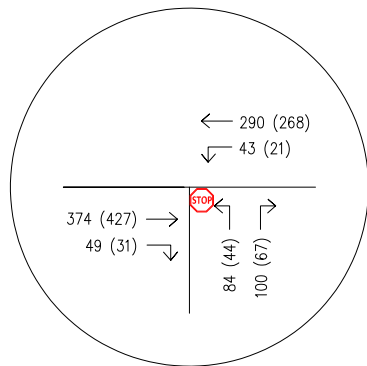
7: LOS VOLCANES AND AIRPORT



8: LOS VOLCANES AND GALLATIN



9: LOS VOLCANES AND SILVER CREEK



10: BLUEWATER AND AIRPORT

2020 NO BUILD

LEGEND:

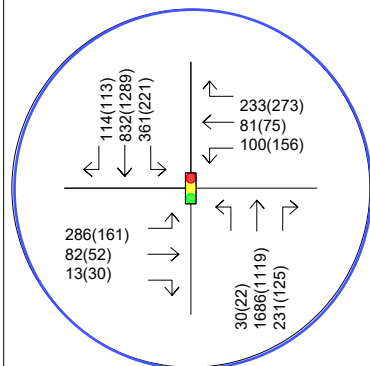
XX (XX) - AM (PM) PEAK HOUR VOLUME

○ = BEK Study Data

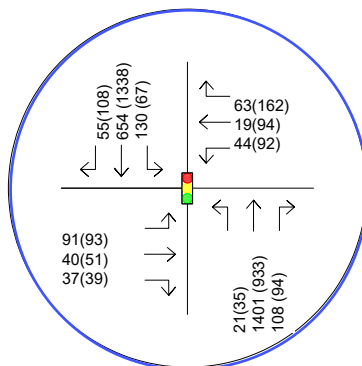
○ = MRCOG Data

- (-) →
 - (-) →
 - (-) →

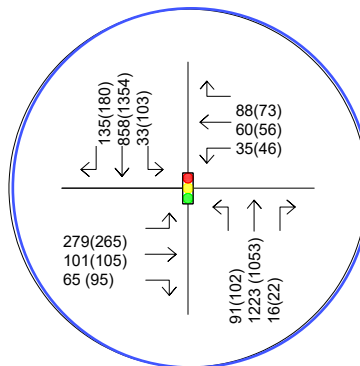
LANE CONFIGURATION



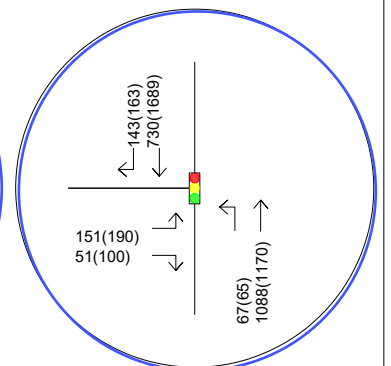
1: UNSER AND LOS VOLCANES



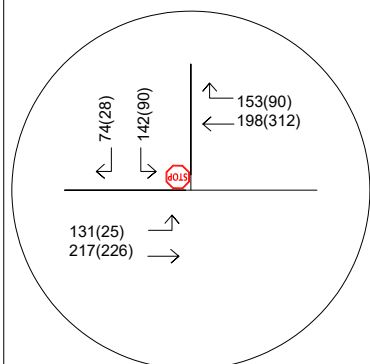
2: UNSER AND BLUEWATER



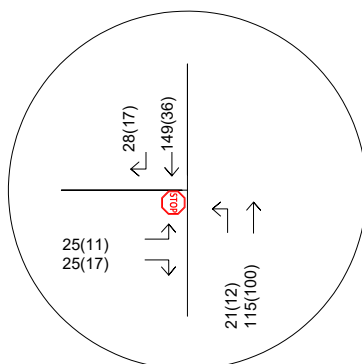
3: COORS AND BLUEWATER



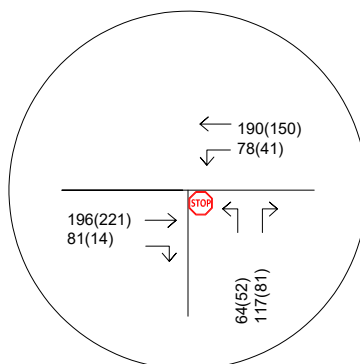
4: COORS AND LOS VOLCANES



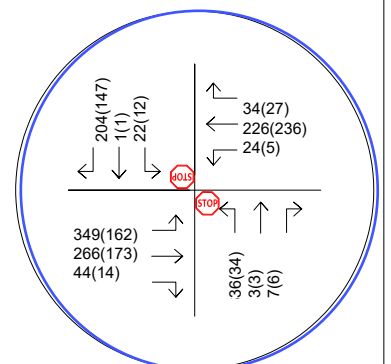
5: BLUEWATER AND AIRPORT



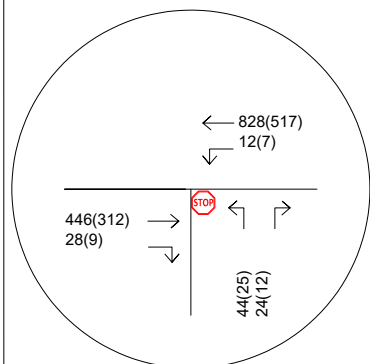
6: AIRPORT AND MERIDIAN



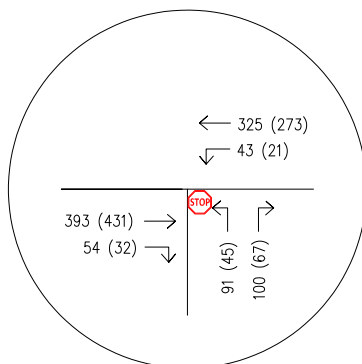
7: LOS VOLCANES AND AIRPORT



8: LOS VOLCANES AND GALLATIN



9: LOS VOLCANES AND SILVER CREEK



10: BLUEWATER AND AIRPORT

2020 BUILD

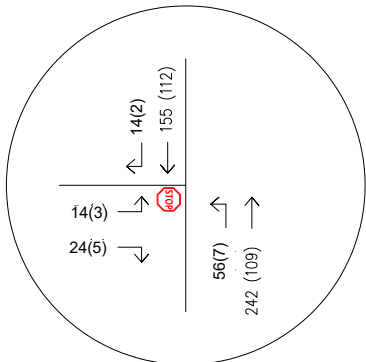
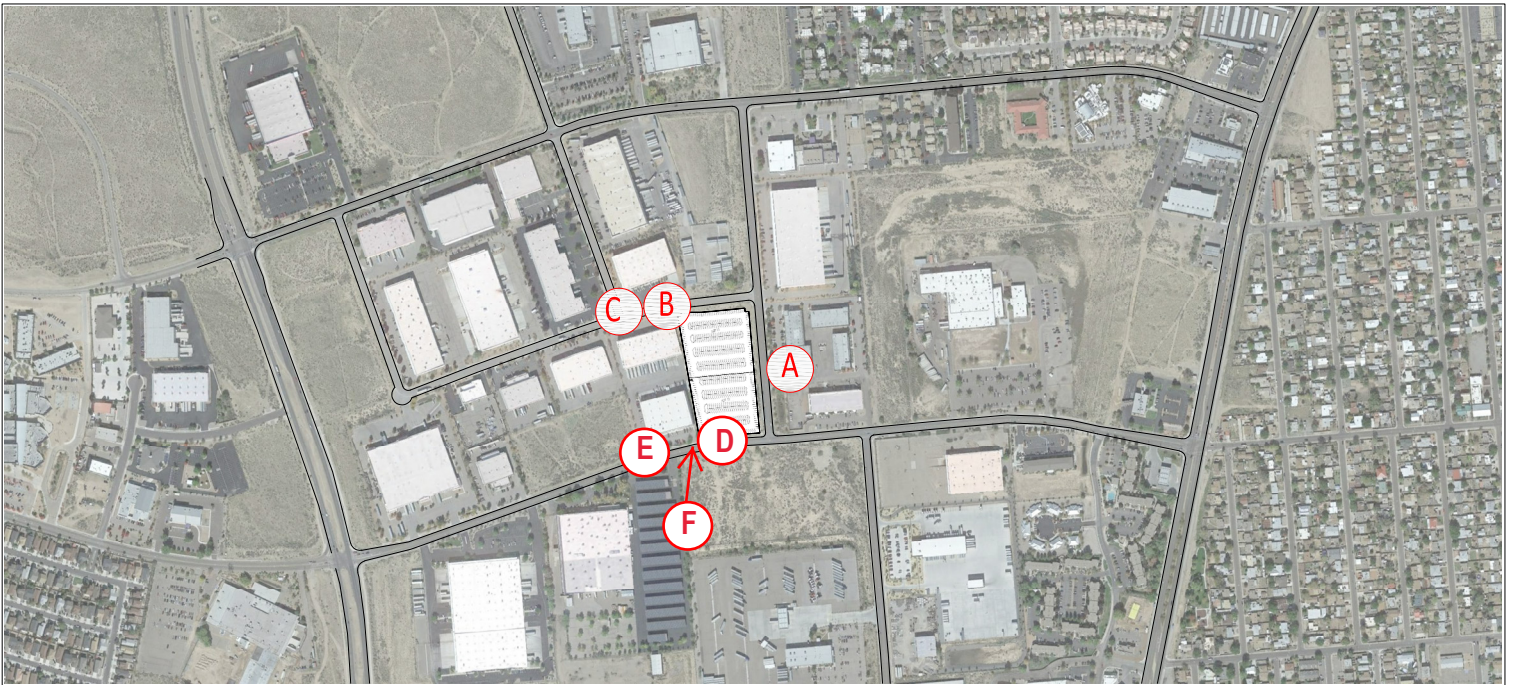
LEGEND:

XX (XX) - AM (PM) PEAK HOUR VOLUME

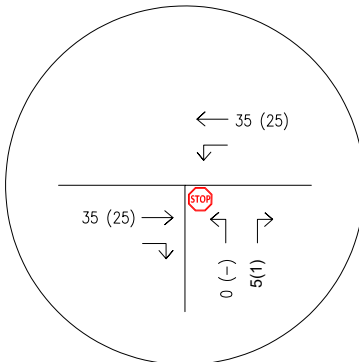
○ = BEK Study Data
 ○ = MRCOG Data

- (-) →
 - (-) →
 - (-) →

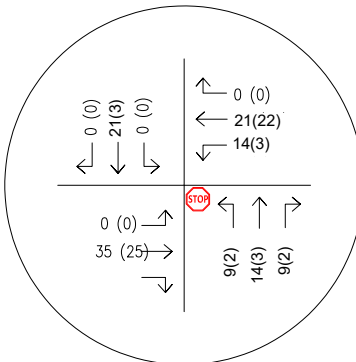
— LANE CONFIGURATION



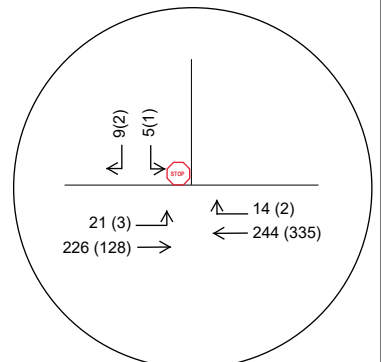
**DRIVEWAY A
(FULL ACCESS)**



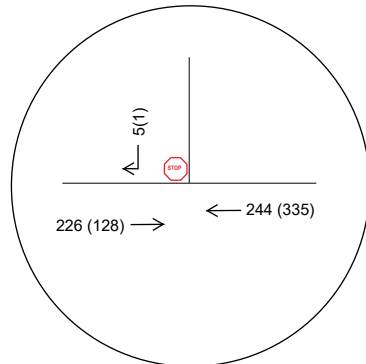
**DRIVEWAY B
(EXIT ONLY)**



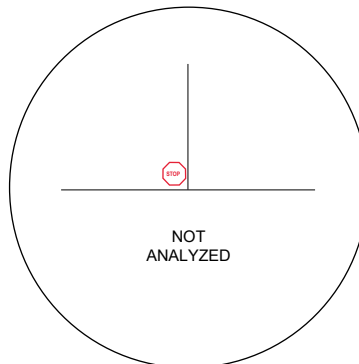
**DRIVEWAY C
(FULL ACCESS)**



**DRIVEWAY D
(FULL ACCESS)**



**DRIVEWAY E
(EXIT ONLY)**



**DRIVEWAY F
(FULL ACCESS)**

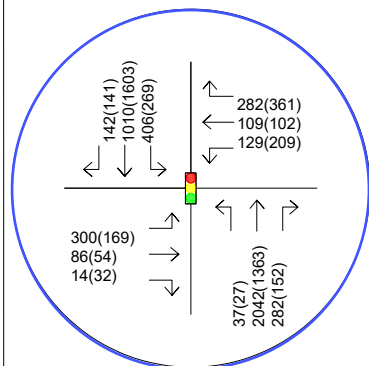
2020 BUILD DRIVEWAYS

LEGEND:

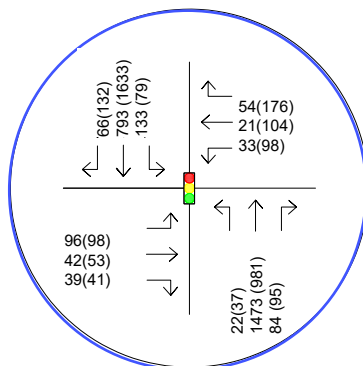
XX (XX) - AM (PM) PEAK HOUR VOLUME

- (-) ↗
 - (-) →
 - (-) ↘

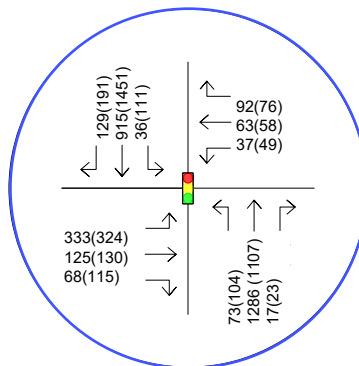
— LANE CONFIGURATION



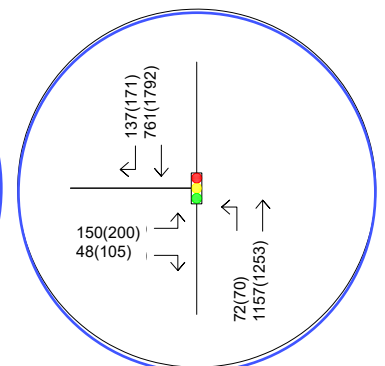
1: UNSER AND LOS VOLCANES



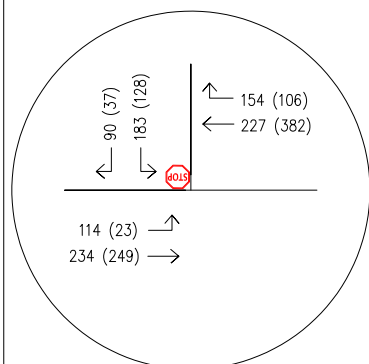
2: UNSER AND BLUEWATER



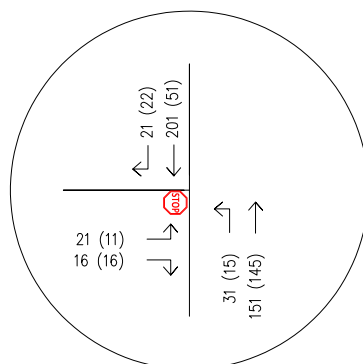
3: COORS AND BLUEWATER



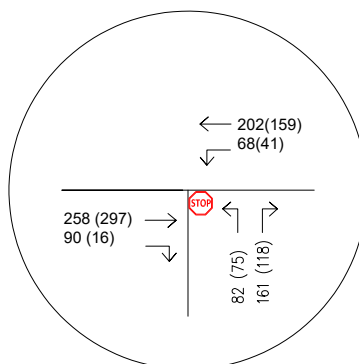
4: COORS AND LOS VOLCANES



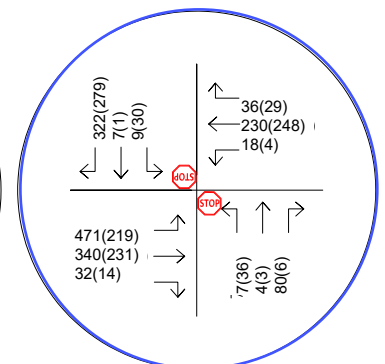
5: BLUEWATER AND AIRPORT



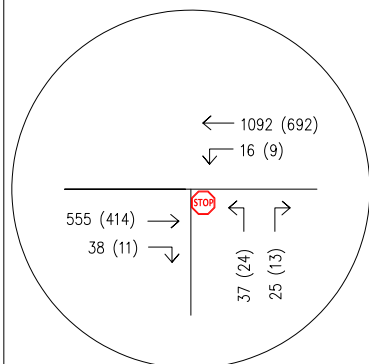
6: AIRPORT AND MERIDIAN



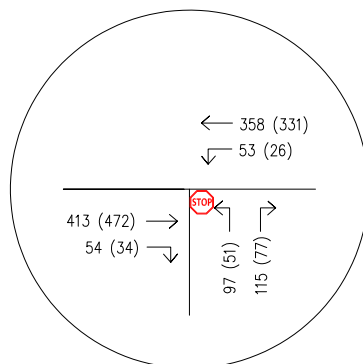
7: LOS VOLCANES AND AIRPORT



8: LOS VOLCANES AND GALLATIN



9: LOS VOLCANES AND SILVER CREEK



10: BLUEWATER AND AIRPORT CREEK

2030 NO BUILD

LEGEND:

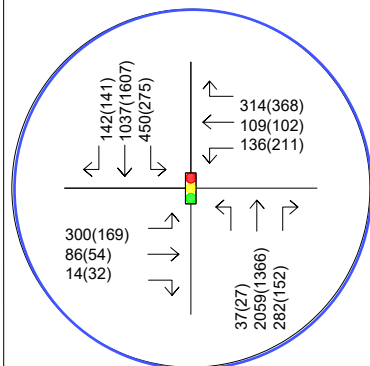
XX (XX) - AM (PM) PEAK HOUR VOLUME

○ =BEK Study Data

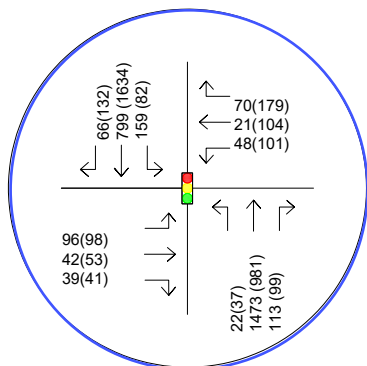
○ =MRCOG Data

- (-) →
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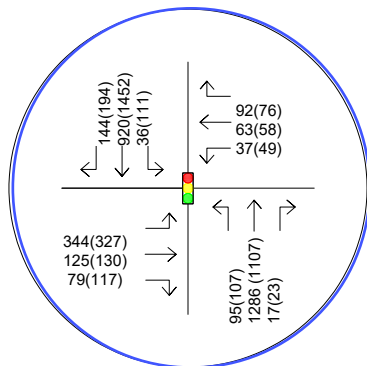
LANE CONFIGURATION



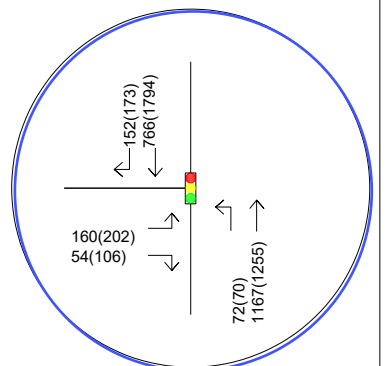
1: UNSER AND LOS VOLCANES



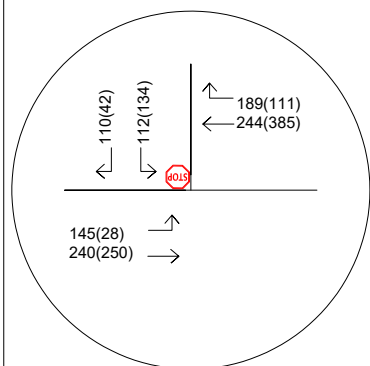
2: UNSER AND BLUEWATER



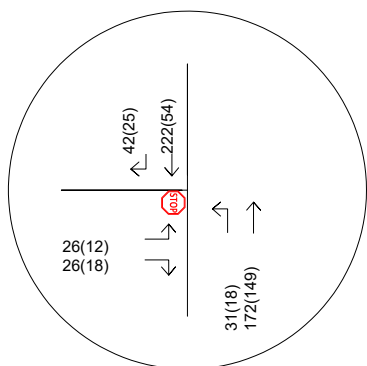
3: COORS AND BLUEWATER



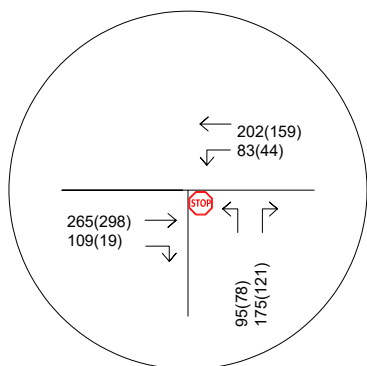
4: COORS AND LOS VOLCANES



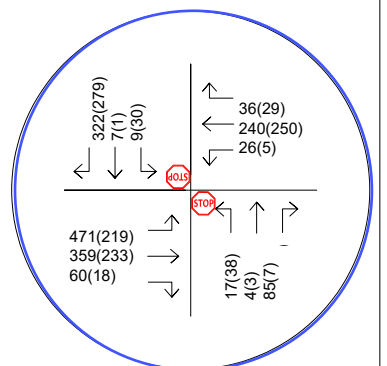
5: BLUEWATER AND AIRPORT



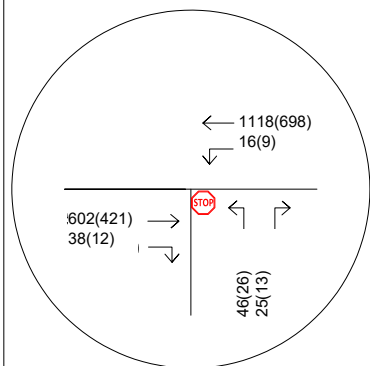
6: AIRPORT AND MERIDIAN



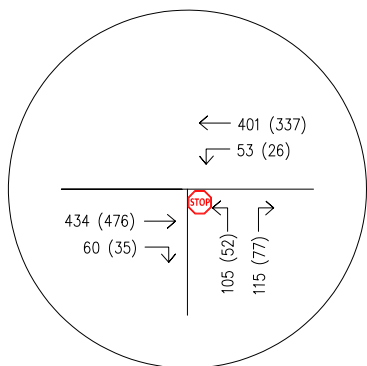
7: LOS VOLCANES AND AIRPORT



8: LOS VOLCANES AND GALLATIN



9: LOS VOLCANES AND SILVER CREEK



10: BLUEWATER AND AIRPORT

2030 BUILD

LEGEND:

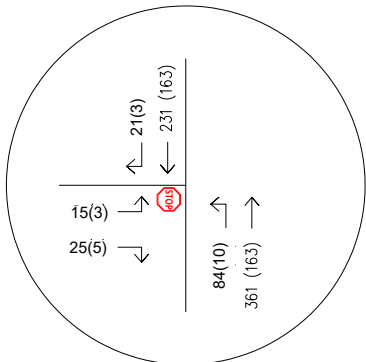
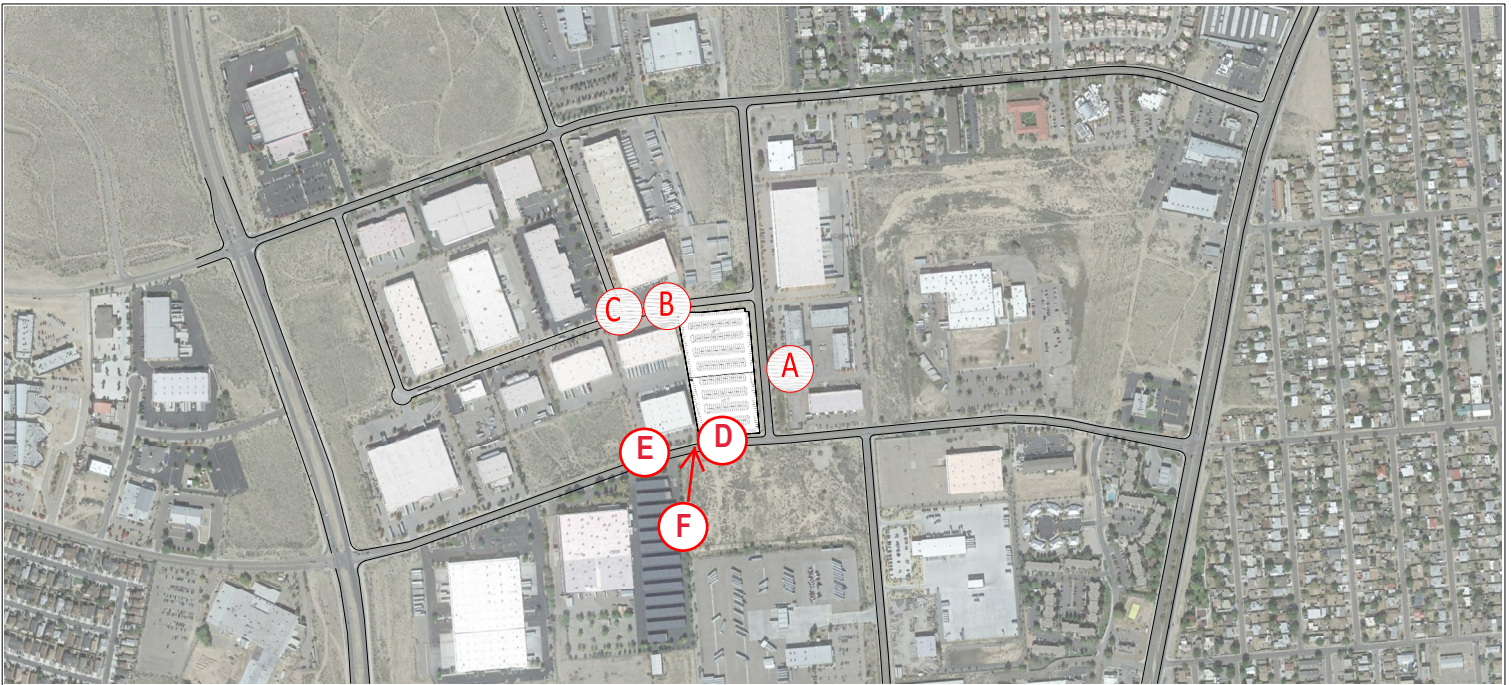
XX (XX) - AM (PM) PEAK HOUR VOLUME

○ =BEK Study Data

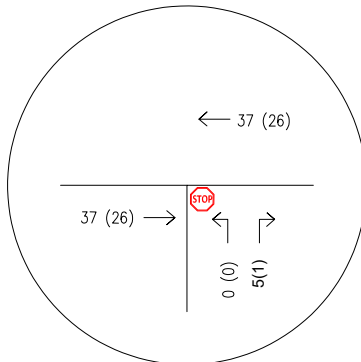
○ =MRCOG Data

- (-) →
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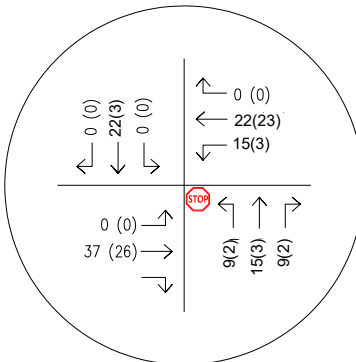
LANE CONFIGURATION



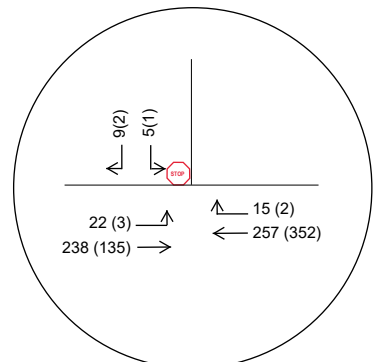
DRIVEWAY A
(FULL ACCESS)



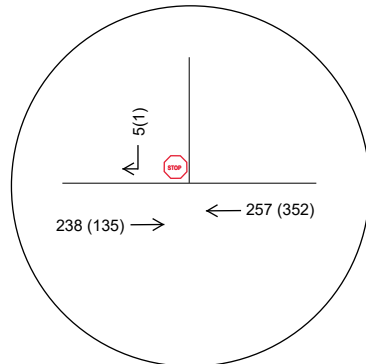
DRIVEWAY B
(EXIT ONLY)



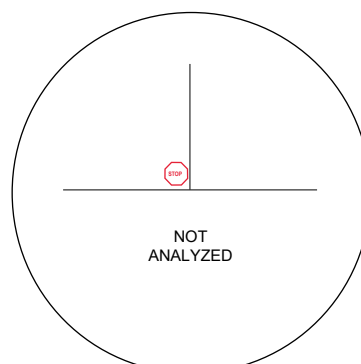
DRIVEWAY C
(FULL ACCESS)



DRIVEWAY D
(FULL ACCESS)



DRIVEWAY E
(EXIT ONLY)



DRIVEWAY F
(FULL ACCESS)

2030 BUILD DRIVEWAYS

LEGEND:

XX (XX) - AM (PM) PEAK HOUR VOLUME

- (-) →
 - (-) →
 - (-) →

LANE CONFIGURATION

Traffic Analysis

Using Highway Capacity Software 7(HCS7), a capacity analysis was conducted for the Implementation and Horizon Years (2020 and 2030) of the No Build and Build Conditions, see Appendix D. Signal timing plans were provided by the City of Albuquerque for intersections 1 through 4. While each movement of the intersections were analyzed, only the worst-case approach is shown in the table below. Based on requirements mentioned earlier, LOS D or better is required.

2020 NO BUILD vs 2020 BUILD

The results of the 2020 analysis are summarized in the following table and discussed below:

TABLE 1: 2020 CAPACITY ANALYSIS FOR ALL INTERSECTIONS

Year	Study Intersections	Worst Case Approach LOS and Delay						INTERSECTION LOS			
		NO BUILD			BUILD			NO BUILD		BUILD	
		Worst Case APPROACH	Delay	LOS	Worst Case APPROACH	Delay	LOS				
								Delay	LOS	Delay	LOS
2020 AM	Intersection 1 -SIGNAL	EBL	64.5	E	EBL	56.3	E	15.7	B	15.2	B
	Intersection 2 -SIGNAL	WBR	55.3	E	WBR	56.8	E	15.3	B	17.2	B
	Intersection 3 -SIGNAL	SBR	37.8	D	SBR	38.2	D	23.9	C	24.1	C
	Intersection 4 -SIGNAL	EBL	55.9	E	EBL	56.3	E	4.5	A	4.7	A
	Intersection 5	SB	13.4	B	SB	15.4	C	-	-	-	-
	Intersection 6	EB	10.1	B	EB	10.3	B	-	-	-	-
	Intersection 7	NB	11.3	B	NB	11.8	B	-	-	-	-
	Intersection 8	SB	19.6	C	SB	25.3	D	-	-	-	-
	Intersection 9	NB	14.3	B	NB	15.2	C	-	-	-	-
	Intersection 10	NB	13.6	B	NB	14.3	B	-	-	-	-
2020 PM	Intersection 1 -SIGNAL	WBR	47.9	D	WBR	47.6	D	19.9	B	20.0	C
	Intersection 2 -SIGNAL	WBR	59.7	E	WBR	59.5	E	13.1	B	13.0	B
	Intersection 3 -SIGNAL	WBT	42.9	D	WBT	42.9	D	22.4	C	22.5	C
	Intersection 4 -SIGNAL	EBL	59.3	E	EBL	60.2	E	6.9	A	7.0	A
	Intersection 5	SB	11.6	B	SB	11.7	B	-	-	-	-
	Intersection 6	EB	9.0	A	EB	9.1	A	-	-	-	-
	Intersection 7	NB	10.7	B	NB	10.8	B	-	-	-	-
	Intersection 8	NB	28.1	D	NB	30.5	D	-	-	-	-
	Intersection 9	NB	11.4	B	NB	11.5	B	-	-	-	-
	Intersection 10	NB	12.6	B	NB	12.7	B	-	-	-	-

The most notable impacts occur to the following intersections:

2020 AM Peak:

- Intersection 5 drops in LOS due to an increase of 2.0 seconds in Delay.
- Intersection 8 drops in LOS due to an increase of 5.7 seconds in Delay.
- Intersection 9 drops in LOS due to an increase of 0.9 seconds in Delay.

Because of the delay increase experienced at Intersection 8 (Los Volcanes/Gallatin) during the AM Peak, it could be recommended that the northbound and southbound approaches be configured to incorporate an exclusive left turn lane so that left turn vehicles will not delay the through and right turn movements. However, added turning volumes and delays are minimal and the existing width of the pavement on Gallatin is about 36 feet. In consideration of large truck traffic in the area, it is considered that such a recommendation would not accommodate large trucks, especially semi-tractor trailer trucks. The 2020 analysis of the study intersections demonstrates that the level-of-service and delays experienced during the Build condition will be acceptable when compared to existing No Build conditions for both the AM and PM Peak Hours. Delays and LOS are expected to slightly rise with the Build condition, but all are within acceptable tolerances. Implementation of the proposed development has no significant impact on the operation of the intersections. Therefore, no recommendations are made for the 2020 analysis.

Although not recommended to be implemented by the developer, below are mitigations recommended during the 2020 implementation year to reach LOS D or better for all movements of intersections displaying unacceptable LOS. These recommendations account for both the no-build and build conditions.

Year	Study Intersections	Mitigations recommended to reach LOS D or better for all movements.
2020	Intersection 1 -SIGNAL	Green time from the westbound through phase should be moved into the eastbound left-turn phase.
	Intersection 2 -SIGNAL	A right-turn overlap phase should be added for the westbound right-turn movement during the southbound left-turn phase.
		Add a protected/permitted westbound left-turn phase using green time from the eastbound through phase.
	Intersection 4 -SIGNAL	Coors Blvd. is a coordinated corridor and cannot redistribute green times to the eastbound phase. There is very little that can be done, with the exception of constructing a third eastbound-left turn lane to slightly lower the delay.

2030 NO BUILD VS 2030 BUILD

The results of the 2030 analysis are summarized in the following table and discussed below

TABLE 3: 2030 CAPACITY ANALYSIS FOR ALL INTERSECTIONS/DRIVEWAYS

Year	Study Intersections	Worst Case Approach LOS and Delay						INTERSECTION LOS			
		NO BUILD			BUILD			NO BUILD		BUILD	
		Worst Case APPROACH	Delay	LOS	Worst Case APPROACH	Delay	LOS				
								Delay	LOS	Delay	LOS
2030 AM	Intersection 1 -SIGNAL	EBL	53.9	D	EBL	47.3	D	16.4	B	17.5	B
	Intersection 2 -SIGNAL	NBT	92.2	F	NBT	94.8	F	63.6	E	64.0	E
	Intersection 3 -SIGNAL	SBR	38.5	D	SBR	39.3	D	25.0	C	25.4	C
	Intersection 4 -SIGNAL	EBL	56.2	E	EBL	56.2	E	4.7	A	5.0	A
	Intersection 5	SB	17.4	C	SB	24.1	C	-	-	-	-
	Intersection 6	EB	11.1	B	EB	11.5	B	-	-	-	-
	Intersection 7	NB	13.5	B	NB	14.7	B	-	-	-	-
	Intersection 8	SB	42.1	E	SB	49.2	E	-	-	-	-
	Intersection 9	NB	18.8	C	NB	20.6	C	-	-	-	-
	Intersection 10	NB	15.5	C	NB	16.6	C	-	-	-	-
2030 PM	Intersection 1 -SIGNAL	WBR	45.8	D	WBR	45.6	D	24.6	C	25.5	C
	Intersection 2 -SIGNAL	WBR	58.9	E	WBR	58.7	E	15.2	B	14.5	B
	Intersection 3 -SIGNAL	EBL	51.9	D	EBL	52.5	D	24.5	C	24.6	C
	Intersection 4 -SIGNAL	EBL	59.9	E	EBL	59.9	E	7.2	A	7.3	A
	Intersection 5	SB	13.4	B	SB	13.7	B	-	-	-	-
	Intersection 6	EB	9.3	A	EB	9.4	A	-	-	-	-
	Intersection 7	NB	12.2	B	NB	12.4	B	-	-	-	-
	Intersection 8	NB	49.8	E	NB	52.6	F	-	-	-	-
	Intersection 9	NB	13.0	B	NB	13.1	B	-	-	-	-
	Intersection 10	NB	13.6	B	NB	13.7	B	-	-	-	-

The most notable impacts occur to the following intersections:

2030 AM Peak:

- Intersection 2 has a LOS F due to the increase in northbound through movement volumes projected into 2030. Note that the increase in volumes for this movement are not associated with the proposed development.

2030 PM Peak:

- Intersection 8 drops in LOS due to an increase of 2.8 seconds in Delay.

Because of the drop in LOS experienced at Intersection 8 (Los Volcanes/Gallatin) during the PM Peak, it could be recommended that the northbound approach be configured to incorporate an exclusive left turn lane so that left turn vehicles will not delay the through and right turn movements. However, added turning volumes and delays are minimal and the existing width of the pavement on Gallatin is about 36 feet. In consideration of large truck traffic in the area, it is considered that such a recommendation would not accommodate large trucks, especially semi-tractor trailer trucks. The 2030 analysis of the study intersections demonstrates that the level-of-service and delays experienced during the Build condition will be acceptable when compared to existing No Build conditions for both the AM and PM Peak Hours. Delays and LOS are expected to slightly rise with the Build condition, but all are within acceptable tolerances. Implementation of the proposed development has no significant impact on the operation of the intersections. Therefore, no recommendations are made for the 2030 analysis.

Although not recommended to be implemented by the developer, below are mitigations recommended during the 2030 projected year to reach LOS D or better for all movements of intersections displaying unacceptable LOS. These recommendations account for both the no-build and build conditions.

Year	Study Intersections	Mitigations recommended to reach LOS D or better for all movements.
2030	Intersection 2 -SIGNAL	Unser Blvd is a coordinated corridor and cannot redistribute northbound and southbound greentimes. Due to overcapacity, constructing a third northbound through lane along Unser Blvd. is recommended.
	Intersection 4 -SIGNAL	Previous 2020 recommended mitigations provide acceptable LOS.
	Intersection 8	Construct exclusive northbound and southbound left-turn lanes.

The table on the following page summarizes the results of the queuing analysis for the auxiliary lanes at the signalized intersections:

TABLE 2: 2030 - 95TH PERCENTILE TURN LANE QUEUES

Study Intersection s	Movement	AM		PM		Existing Storage (ft)
		NO BUILD	BUILD	NO BUIL	BUILD	
		95th Percentile (ft)	95th Percentile (ft)	95th Percentile (ft)	95th Percentile (ft)	
Intersection 1	EBL	250	228	205	204	150
	WBL	120	123	200	201	212
	WBR	242	259	325	329	418
	NBL	15	17	14	14	500
	NBR	66	78	3	3	150
	SBL	68	104	112	115	1300
	SBR	87	79	177	177	150
Intersection 2	EBL	119	119	125	124	100
	WBL	43	64	138	143	150
	WBR	68	90	229	233	150
	NBL	10	10	21	22	150
	NBR	15	23	41	47	275
	SBL	108	130	28	29	150
	SBR	4	4	19	19	150
Intersection 3	EBL	238	246	118	121	200
	EBR	35	41	74	76	200
	WBR	83	83	82	82	100
	NBL	54	72	80	83	250
	SBL	20	20	87	87	125
Intersection 4	EBL	102	110	140	142	130
	EBR	49	56	132	133	250
	NBL	10	10	48	48	225

A review of the calculated 95Th percentile queue demands indicate an existing need for additional storage for the turn movements highlighted in red. These locations are discussed below:

Intersection 1:

The queueing analysis for the identified turn lane shows no significant impact caused by the build. Through striping, longer turn lanes could be considered for the EBL turn lanes. For the SBR turn lane, the expected need just surpasses the existing storage available. Therefore, no recommendation regarding storage lanes is required at this location.

Intersection 2:

The queueing analysis for the identified turn lane shows no significant impact caused by the build. The EBL turn lane for both the AM and PM peak hours are only slightly over the existing storage length available. For the WBR turn lane, available right-of-way is limited. Therefore, no recommendation regarding storage lanes is required at this location.

Intersection 3:

The queueing analysis for the identified turn lane shows no significant impact caused by the build. Through striping longer turn lanes could be considered for the EBL turn lanes. No recommendation regarding storage lanes is required at this location.

Intersection 4:

The queueing analysis for the identified turn lane shows no significant impact caused by the build. The EBL turn lane for the PM peak hour is only slightly over the existing storage length available. Therefore, no recommendation regarding storage lanes is required at this location.

No recommendations regarding storage lanes are required for this study.

DRIVEWAY ANALYSIS

The 2020 and 2030 analysis of the driveways demonstrates that the delays will be acceptable for all conditions analyzed in this report. Therefore, no recommendations are made.

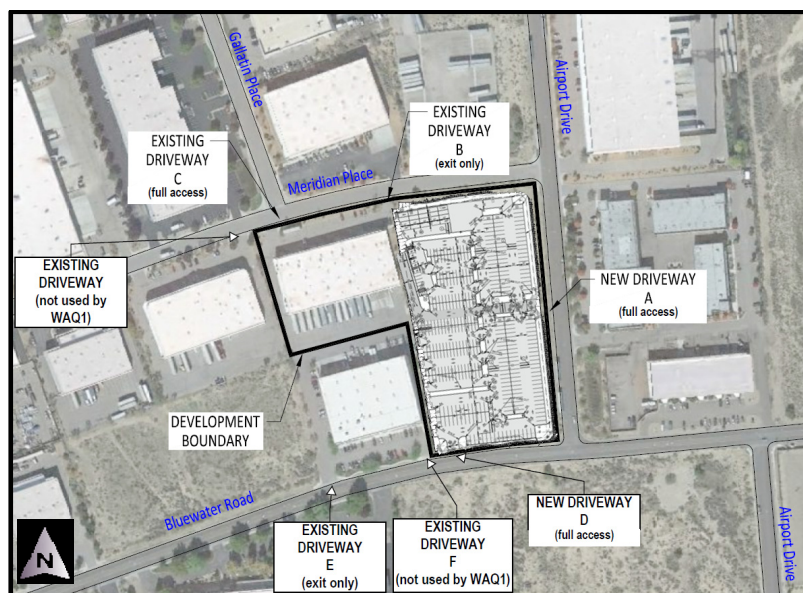
YEAR	DRIVEWAY	AM			PM		
		Worst Case APPROACH	Delay	LOS	Worst Case APPROACH	Delay	LOS
2020 BUILD	DRIVEWAY A	EB	10.9	B	EB	9.3	A
	DRIVEWAY B	NB	8.5	A	NB	8.4	A
	DRIVEWAY C	NB	9.3	A	NB	9.0	A
	DRIVEWAY D	SB	10.9	B	SB	10.9	B
	DRIVEWAY E	SB	9.7	A	SB	10.3	B
2030 BUILD	DRIVEWAY A	EB	13.1	B	EB	9.9	A
	DRIVEWAY B	NB	8.5	A	NB	8.5	A
	DRIVEWAY C	NB	9.4	A	NB	9.0	A
	DRIVEWAY D	SB	11.1	B	SB	11.1	B
	DRIVEWAY E	SB	9.8	A	SB	10.4	B

Impact Assessment

The proposed development will have minimal impacts on the transportation system. All the levels-of-service were determined to be acceptable for the intersections or, if the levels-of-service were deemed unacceptable, it was determined that the proposed WAQ1 Delivery Station Development had an insignificant impact on the intersection.

Access Design Specifications

Sight distances at the proposed five driveways are adequate. There are no vertical or horizontal curves and there are no structures that are blocking sight distance into and out of the driveways. Design requirements of the project driveway's will be governed by the City of Albuquerque's Development Process (DPM). According to Table 7.4.67 Turn Lane Warrants of the DPM, a right-turn lane will not be required for any of the five driveways as turning volumes do not meet the threshold of 60 turns per hour for a 25-mph design speed.



A review of the location and spacing of each individual driveway is provided below:

Driveway A:

Proposed Driveway A is a full access driveway and has been designed in a location that would best accommodate fire truck access directly to the site. It is located about 100 feet from the centerline of the opposing driveway along Airport road which complies with Section 7-4(B)(6) of the DPM. Using Table 7.4.67, a left-turn lane meets the threshold requirements at Driveway A. However, the roadway width is 45 feet at this location, and provides enough room for vehicles to drive around as needed. In addition, the left-turn movement during this timeframe displays a LOS B, therefore there are no recommendations to Driveway A.

Driveway B:

Existing Driveway B is an exit only driveway and is located within 50 feet of the existing opposing driveway centerline. Because this driveway is an exit only, it limits the conflicts that could occur with the opposing driveway. As noted in Table 7-4(B)(6) of the DPM, the offset of Driveway B from the existing opposing driveway limits the potential crossing of left turn paths from the driveways and meets Case F Sight Distance recommendations of the AASHTO Green Book. Therefore, there are no recommendations to Driveway B.

Driveway C:

Existing Driveway C is a full access driveway and is located about 45 feet (edge to edge) from an existing driveway to the west of its current location; DPM requires 100 ft spacing between adjacent driveways. Driveway C is also located within 50 feet of the existing opposing intersection centerline. Due to Driveway C's close proximity to the building face of the development, it is currently located in the most ideal location to accommodate truck turning movements to and from the front and rear of the building. Relocating this driveway to the east would prohibit WB-67 truck access to the site. The number of entering trips is relatively small and does not create a significant conflict on the roadway. Therefore, there are no recommendations to Driveway C.

Driveway D:

Proposed Driveway D is a full access driveway and is located about 75 feet from existing Driveway F to the west of its proposed location. It is recommended that Driveway D be relocated further east to maintain the DPM's 100 foot spacing between adjacent driveways requirements, while maintaining a required spacing of 100 feet from the Airport Dr. intersection.

Driveway E:

Existing Driveway E is a shared driveway with the neighboring property and has a reciprocal easement with adjoining lots (13 & 14) which will allow the traffic to exit the WAQ1 Delivery Station. There are no recommendations for Driveway E.

Driveway F:

Existing Driveway F is a driveway located on the neighboring property and will not be used by the proposed development. There are no recommendations for Driveway F.

Summary of Deficiencies, Anticipated Impacts, and Recommendations

The existing 2020 and the projected 2030 analysis determined some deficiencies in the adjacent transportation system however, they are all associated with both the No Build and Build condition. The analysis demonstrated that the impacts of the proposed WAQ1 Delivery Station are insignificant and require very minor improvements mentioned below.

Findings & Recommendations:

1. Driveway D will need to be designed further east to maintain a required 100 foot spacing from existing Driveway F while also maintaining 100 foot spacing from the Airport Drive/Bluewater intersection.
2. Design and construction of the proposed WAQ1 Delivery Station shall maintain adequate sight distances at proposed driveways.