WYNDHAM ALBUQUERQUE HOTEL AND CONFERENCE CENTER PLANNED RENOVATIONS

CARLISLE BOULEVARD AND CUTLER AVENUE ALBUQUERQUE, NEW MEXICO

TRAFFIC ANALYSIS

JUNE 18, 2018

Prepared For:

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Prepared By:

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Engineering
Spatial Data
Advanced Technologies

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WYNDHAM ALBUQUERQUE HOTEL AND CONFERENCE CENTER PLANNED RENOVATIONS CARLISLE BOULEVARD AND CUTLER AVENUE ALBUQUERQUE, NEW MEXICO TRAFFIC ANALYSIS

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

I. INTRODUCTION AND SUMMARY

The Wyndham Albuquerque Hotel and Conference Center (previously known as the Hotel Cascada and Water Park) are planning on renovating the water park and a wing of the hotel into a 30,000 square-foot fitness center and a 170-unit apartment building. This change in use results in 31 fewer trips to the site in the AM peak hour, and the same number of trips in the PM peak hour.

A. STUDY PURPOSE

The traffic study requested by the City consists of an access study of the proposed Carlisle Boulevard and Cutler Avenue entrance (a right-in only, as Cutler is one-way eastbound), as well as an evaluation of the proposed site entry off Cutler Avenue.

Recommendations on wayfinding so patrons of the fitness center and apartments use the correct driveway, as well as additional signage to prevent wrong way drivers exiting via Cutler, will also be presented.

B. EXECUTIVE SUMMARY

1. SITE LOCATION AND STUDY AREA

The site is located east of the Carlisle Boulevard and Cutler Avenue intersection in Albuquerque, New Mexico. A vicinity map is shown in Figure 1, and the current site plan shown in Figure 2.

The study area consists of the following intersections:

- Carlisle Boulevard and Cutler Avenue (existing right-in only unsignalized intersection)
- New Cutler Avenue entrance to site (proposed one-way (entering only) driveway)

The intersection evaluations include analysis for the AM and PM peak hours for the following traffic conditions:

- Existing traffic (2018)
- 2021 Completion Year without proposed development (2021 No Build)
- 2021 Completion Year with buildout of proposed development (2021 Build)

2. PRINCIPAL FINDINGS

The traffic analysis shows that under existing 2018, 2021 No Build, and 2021 Build conditions, the unsignalized intersection of Carlisle Boulevard and Cutler Avenue is

expected to operate at an acceptable delay. HCM procedures do not determine a delay for a right turn at an unsignalized intersection; therefore, SimTraffic was used to estimate delay and queue. The SimTraffic delay was minimal, as would be expected with an unsignalized, free movement. SimTraffic also did not report a vehicle queue for the northbound right turning vehicles.

The proposed entrance on Cutler was also evaluated. Again, the HCM procedures do not report a delay, as Cutler is a one-way eastbound roadway, with no opposing traffic to delay the entering vehicles. SimTraffic was again used to evaluate the driveway operations, and found very low delay, with no queue.

A second check was made to determine the volume-to-capacity (v/c) ratio of the approaches to each intersection. An estimate of 900 vehicles per hour per lane was assumed. This is considered reasonable, as a free-flow lane is generally considered to have a capacity of 1,700 – 1,900 vehicles per hour. The 900 vehicles per hours per lane was used as an estimate of the capacity of a roadway with traffic signals that reduce the capacity of a free-flow lane. The v/c ratio was within a range that does not indicate high levels of congestion.

3. RECOMMENDATIONS

Do Not Enter signs (R5-1) should be installed prominently at the proposed entrance to discourage wrong-way traffic to exit via Cutler.

Wayfinding signs should also be installed to direct patrons and residents to the Cutler entrance to the site.

All improvements should be designed to satisfy City of Albuquerque, Manual on Uniform Traffic Control Devices (MUTCD), and American Association of State Highway Transportation Officials (AASHTO) design standards.

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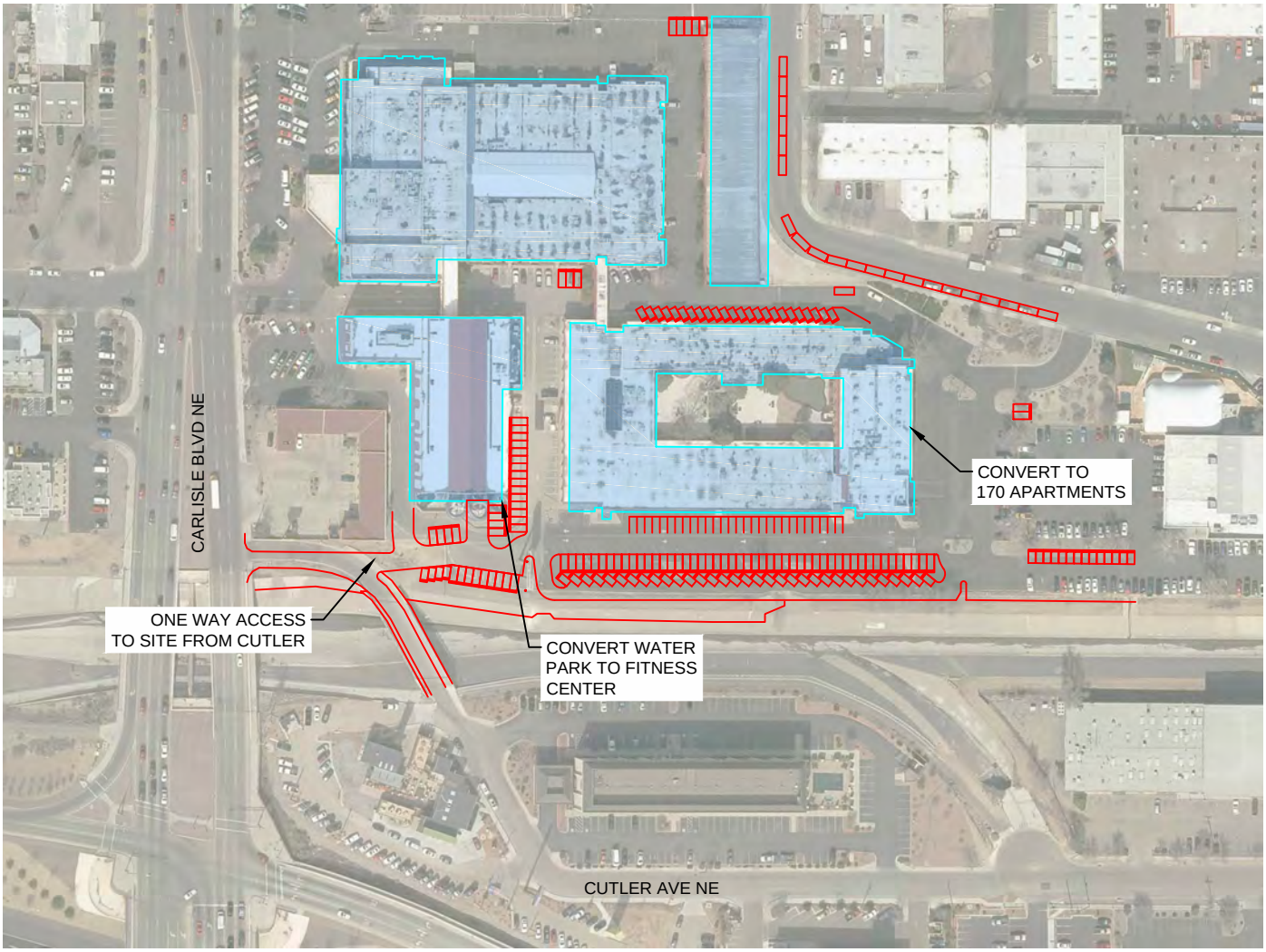
Bohannan Huston www.bhinc.com 800.877.5332	**Wyndham Albuquerque Hotel and Convention Center Renovations Albuquerque, NM Site Traffic Analysis**	**Figure 1 Vicinity Map**



II. PROPOSED DEVELOPMENT

A. LAND USE AND INTENSITY

The project is proposed to renovate the water park into a 30,000-square foot fitness center. This fitness center will be open to the public. In addition, a wing of the hotel east of the water park will also be renovated into an apartment building. It is expected the hotel wing will be renovated to create 170 apartment dwelling units.

The immediately surrounding land uses are primarily commercial development to the east, west and north. Immediately south of the site is the Green Jeans Farmery commercial development and Interstate 40.

B. DEVELOPMENT PHASING AND TIMING

The renovations are anticipated to be complete within two (2) years, and the year 2021 was used as the analysis year for the traffic study.

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III. STUDY AREA CONDITIONS

A. STUDY AREA

The study area consists of the following intersections:

- Carlisle Boulevard and Cutler Avenue (existing right-in only unsignalized intersection)
- New Cutler Avenue entrance to site (proposed one-way (entering only) driveway)

B. SITE ACCESSIBILITY

The access to the site will be via the Cutler Avenue intersection, as well as Prospect Avenue driveway to the main hotel grounds. See the site plan in Figure 2, on page 4 for the conceptual site plan and proposed access locations.

C. DATA SOURCES

The data used in this report consist of the traffic counts described below, aerial photography and mapping from Google Earth®, information provided by Environmental Dynamics, and historical traffic volume and socioeconomic data from the Mid-Region Council of Governments.

IV. ANALYSIS OF EXISTING CONDITIONS

A. BACKGROUND

Carlisle Boulevard is classified as a minor arterial by the Mid-Region Council of Governments (MRCOG). The posted speed limit is 35 miles per hour (MPH). Across the frontage of the site, Carlisle Boulevard has three (3) travel lanes in each direction. Sidewalk is present, however there is no dedicated bike lane on Carlisle Boulevard. The MRCOG online traffic flow map indicates Carlisle Boulevard has an average weekday traffic volume of approximately 30,530 vehicles per day (vpd) across the frontage of the site.

At Carlisle Boulevard, Cutler Avenue is a one-lane, one-way local road that provides access to commercial development south of the AMAFCA Channel and north of I-40. Cutler Avenue is a two-way roadway just after Cutler passes over the AMAFCA Channel. The MRCOG online traffic flow map does not provide volume estimates for Cutler Avenue. As an aside, the traffic counts found a total of nine (9) vehicles that drove illegally west on Cutler Avenue and turned onto Carlisle during the 6-hour traffic count.

B. EXISTING TRAFFIC CONDITIONS

Traffic counts for the intersections analyzed in the study area were collected Thursday, May 10, 2018, while school was in session. Traffic was counted for three hours in the AM peak and three hours in the PM peak to gather peak hour volumes for the traffic analysis. Figure 3 is a summary of the existing peak hour traffic volumes, existing laneage, turning movements, and intersection level of service. Existing traffic counts are included in Appendix A.

The traffic counts included counts for heavy vehicles, pedestrians, and bicyclists. The table below is a summary of the bicycle and pedestrian counts for the entire six-hour count period, the AM peak hour, and the PM peak hour.

Table 1 – Bicycle and Pedestrian Count Summary

	Carlisle/Cutler		
Mode	**6 hr**	**AM**	**PM**
Bikes	4	4	0
Pedestrians	71	26	45
Total	75	30	45

C. EXISTING LEVELS OF SERVICE

The City of Albuquerque has established LOS D as the generally acceptable level of service in urban areas and when intersections operate below this level, improvements are generally considered, where feasible. However, the subject intersection is a free-flow right turn movement that does not have to stop prior to making the right turn. In addition, Cutler is a one-way entering roadway, so there is no opposing traffic exiting from Cutler onto Carlisle. In this case the procedures of the HCM will indicate no delay for the northbound right turn, as the northbound right does not have to yield to enter Cutler Avenue.

To address this, the SimTraffic micro-simulation software was used to estimate the delay and queue for the northbound right turning vehicles. Six (6) 80-minute simulations were used to determine the operational performance of the intersection. However, the procedures of the HCM indicate that since micro-simulations do not utilize the procedures of the HCM to calculate delay, it is inappropriate to assign a HCM level of service designation (A through F) when a micro-simulation is used. Therefore, the tables and graphics will not show a level of service. All delay and queue results presented in this report are the results of the SimTraffic micro-simulation.

SimTraffic output for the existing conditions analysis is included in Appendix B. Please note only northbound traffic was counted, as there is a median in Carlisle to prevent access to Cutler Avenue, and therefore southbound traffic does not influence this intersection.

The results are summarized in Table 3, and shown graphically in Figure 3.

The analysis indicates the unsignalized intersection will operate with an overall acceptable delay and queue in both the AM and PM peak hours.

As a second check of the operations of the northbound Carlisle approach to the Cutler intersection, a volume-to-capacity ratio was evaluated for the intersection. The volume-to-capacity (v/c) ratio was estimated by dividing the total northbound volume at the intersection by 2,700 vehicles per hour. The 2,700 vehicles per hour was determined by using a capacity of 900 vehicles per hour per lane (vphpl). This is considered a conservative estimate for lane capacity of a minor arterial with signalized intersections.

The volume used in the v/c ratio is the peak 15-minute demand flow rate (Equation 20-1 on page 20-12 of the 6th Edition of the HCM). The peak 15-minute demand flow rate is calculated by dividing the peak hour traffic volume by the peak hour factor (PHF) of the intersection. The existing traffic counts in Appendix A show the intersection PHF for the AM peak hour is 0.91, and the PM peak hour factor is 0.93. The PHF is also shown in Figure 3.

The peak hour volume is the sum of the northbound through and right turn volume shown in Figure 3.

The calculation of the v/c ratio is shown in Table 2.

Table 2 – 2018 AM and PM Volume-to-Capacity Calculation

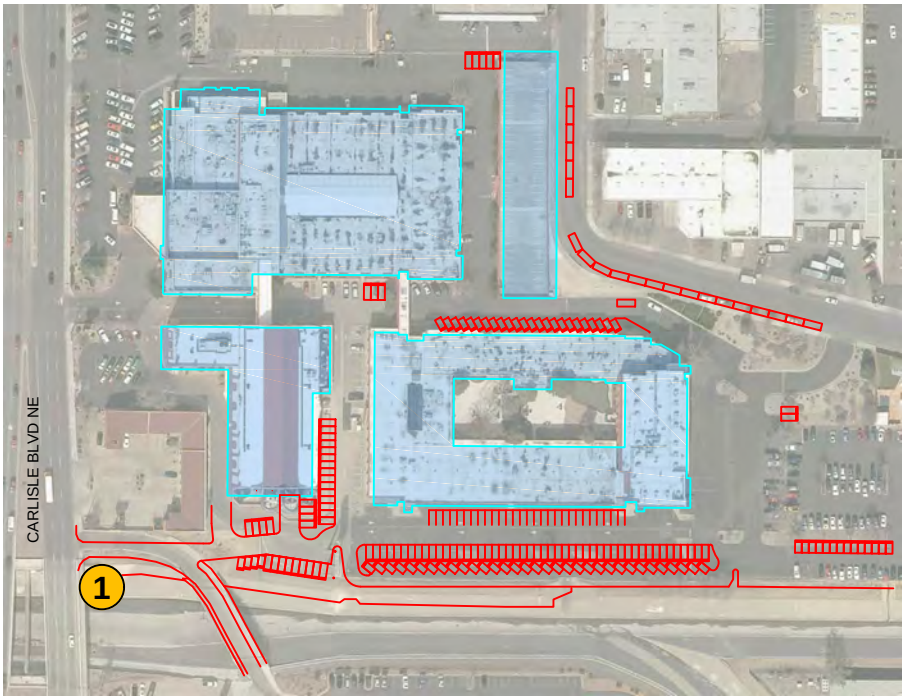
Peak Hour	PHF	NB Approach Peak Hour Volume	NB Approach Peak 15-minute Volume	Assumed Capacity	Estimated v/c*
AM Peak Hour	0.91	1,138 + 162 = 1,300	1,300 / 0.91 = 1,429	2,700	0.53
PM Peak Hour	0.93	1,390 + 191 = 1,581	1,581 / 0.93 = 1,700	2,700	0.63

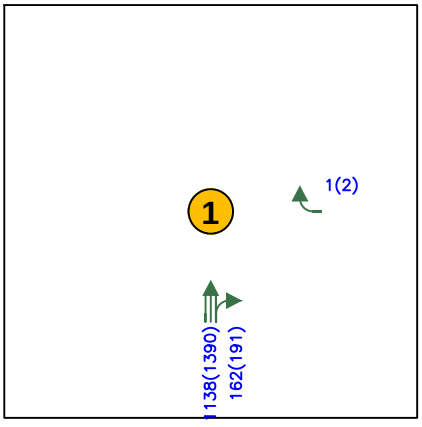
*- v/c estimated by total northbound volume divided by 2,700 (3 lanes with assumed capacity of 900 vphpl)

Table 3 – 2018 AM and PM Unsignalized Intersection Results
SimTraffic Results

Intersection/Movement	2018 AM Peak			2018 PM Peak		
	Delay	v/c*	Queue** (ft)	Delay	v/c*	Queue** (ft)
Carlisle and Cutler NB Right	1.0	0.53	0	1.3	0.63	0

*- v/c estimated by total northbound volume divided by 2,700 (3 lanes with assumed capacity of 900 vphpl)
** - SimTraffic 95th percentile queue rounded to next 25-foot increment





AM PHF: 0.91
PM PHF: 0.93

LEGEND

Thru Lanes (# as indicated)

Turning Lanes (# as indicated)

1234(1234) AM(PM) Traffic Counts

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Figure 3
2018 AM (PM) Peak Hour Traffic Volumes

V. PROJECTED TRAFFIC

A. SITE TRAFFIC FORECASTING

1. TRIP GENERATION

Generated trips are broken down into three types; 1) primary, 2) pass-by trips, and 3) diverted link. The Trip Generation report defines these trips as follows:

- **Primary Trips** - These trips are made for the specific purpose of visiting the generator. The stop at that generator is the primary reason for the trip. For example, a home to shopping to home combination of trips is a primary trip set.
- **Pass-by Trips** - These trips are made as intermediate stops on the way from an origin to a primary trip generation. Pass-by trips are attracted from the traffic passing the site on an adjacent street that contains direct access to the generator site. These trips do not require a diversion from another roadway. For example, stopping at the store on the way home from work is an example of a pass-by trip. No pass-by trips were assumed in this analysis.
- **Diverted Linked Trips** - These trips are attracted from the traffic volume on the roadway within the vicinity of the generator, but which require a diversion from that roadway to another roadway to gain access to the site. The roadways could include streets or freeways adjacent to the generator, but without access to the generator. For this study, the diverted link trips have been included in with the primary trips.

The Institute of Transportation Engineers Trip Generation Manual, 10th Edition was used to estimate the trips generated by the site. As the development is proposed as re-developing the site, the trip generation of the existing uses was also evaluated, with the difference in trips noted.

The estimated trips to be generated by the site is shown in Table 4 below.

The table indicates the trip generation between the two uses is comparable.

Table 4 – Trip Generation							
Land Use	**Size**	**ITE Land Use Type Assumed**	**Daily**	**AM Enter**	**AM Exit**	**PM Enter**	**PM Exit**
EXISTING LAND USE							
Water Park	75 parking spaces	482 – Water Slide Park	171	5	1	5	16
Hotel	255 Rooms	310 – Hotel	2,452	73	50	85	81
Total – Existing Land Use			**2,623**	**78**	**51**	**90**	**97**
PROPOSED LAND USE							
Fitness Center	30,000 sf	492 – Health/Fitness Club	1,130*	21	19	65	48
Apartments	170 DU's	220 – Multi-Family Housing Mid Rise	925	16	42	46	28
Total – Proposed Land Use			**1,925**	**37**	**61**	**111**	**76**
Difference – negative indicates reduction in trips			***-698***	***-41***	***10***	***21***	***-21***
*-No rate provided in ITE Trip Generation Manual, daily traffic estimated using the 10% rule of thumb with the PM peak hour volume							

2. TRIP DISTRIBUTION AND ASSIGNMENT

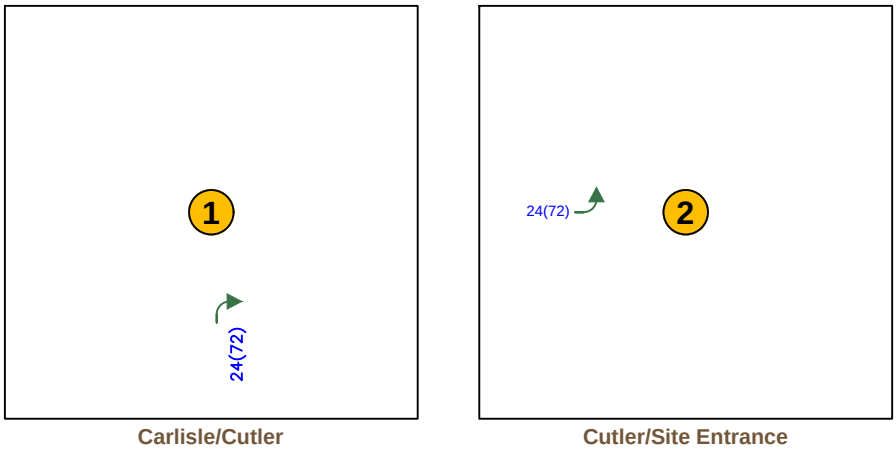
Traffic can only enter the site from northbound Carlisle. For purposes of this analysis, it was assumed 65% of the trips entered via the Cutler Avenue intersection. Also, as no site traffic currently uses Cutler Avenue to access the site (as there is no existing driveway off Cutler), no changes in entering traffic (northbound right turns) was made. No traffic was assumed to exit via Cutler Avenue due to the one-way (eastbound) restriction.

Spreadsheets showing the development of the trips at each intersection is also included in Appendix C. The trip distribution percentages and assigned traffic volumes for the site is shown in Figure 4.

3. 2021 NO BUILD TRAFFIC PROJECTIONS

The MRCOG online traffic count database was used to estimate the background traffic growth. The data for the street segments in the area is summarized in spreadsheets included in Appendix C. This resulted in a slightly negative annual growth rate. For purposes of this study a 1% annual growth rate was used. Figure 5 on page 15 shows the 2021 No Build traffic volumes, number of lanes, and level of service.

The No Build analysis assumes that the proposed project is not completed.

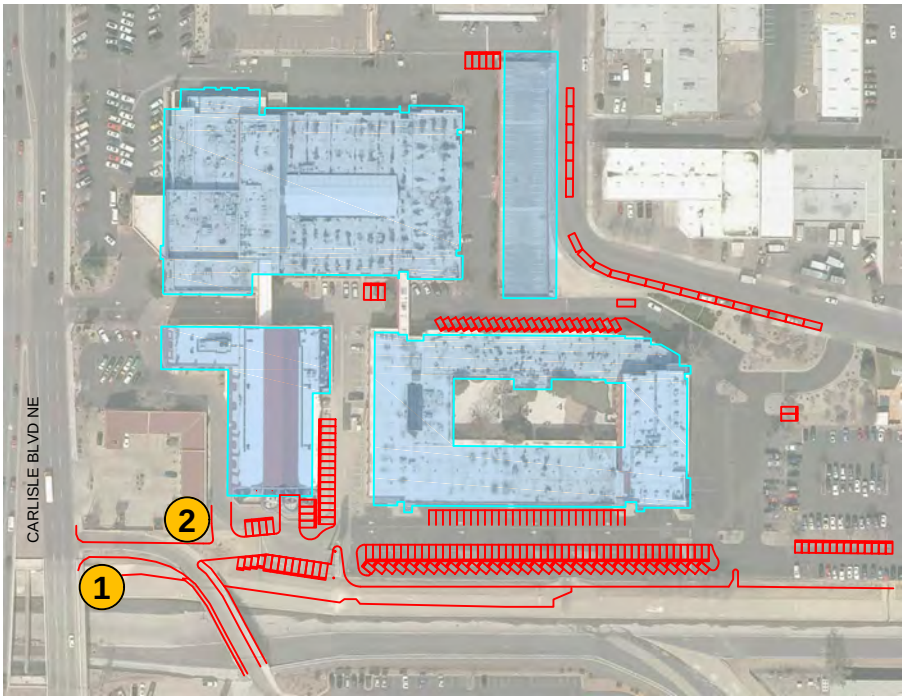


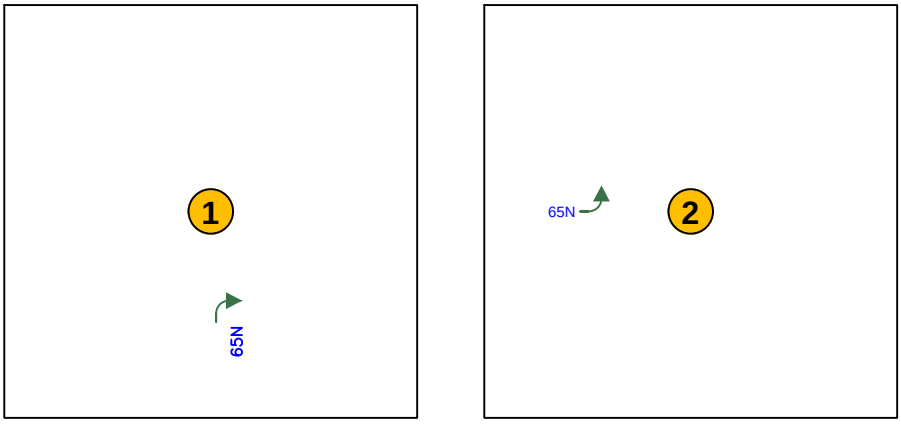
LEGEND

Thru Lanes (# as indicated)

Turning Lanes (# as indicated)

1234(1234) AM(PM) Traffic Counts





LEGEND

Thru Lanes (# as indicated)

Turning Lanes (# as indicated)

1234 Trip Assignment Percentages

N Entering

X Exiting

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Figure 4
Trip Distribution Percentages and Trip Assignment Volumes AM (PM)

VI. TRAFFIC AND IMPROVEMENT ANALYSIS

The following section will discuss the results of the future year traffic analysis.

A. LEVEL OF SERVICE ANALYSIS

1. 2021 NO BUILD INTERSECTION CAPACITY ANALYSIS

For the 2021 No Build scenario, the intersections were again analyzed using Synchro/SimTraffic 10. The results are shown graphically in Figure 5. Table 5 shows the v/c ratio calculation for the 2021 No Build scenario, using the northbound approach volumes and PHF from Figure 5. Please note the existing conditions PHF was maintained, as it is considered to be conservative, as with additional traffic growth on Carlisle the PHF will likely increase slightly, which would result in a lower peak 15-minute flow rate. Table 6 shows the 2021 No Build results. Synchro/SimTraffic output is included in Appendix D.

The analysis indicates the Cutler Avenue intersection continues to operate at acceptable delay and queue in the 2021 No Build condition.

Table 5 – 2021 No Build AM and PM Volume-to-Capacity Calculation

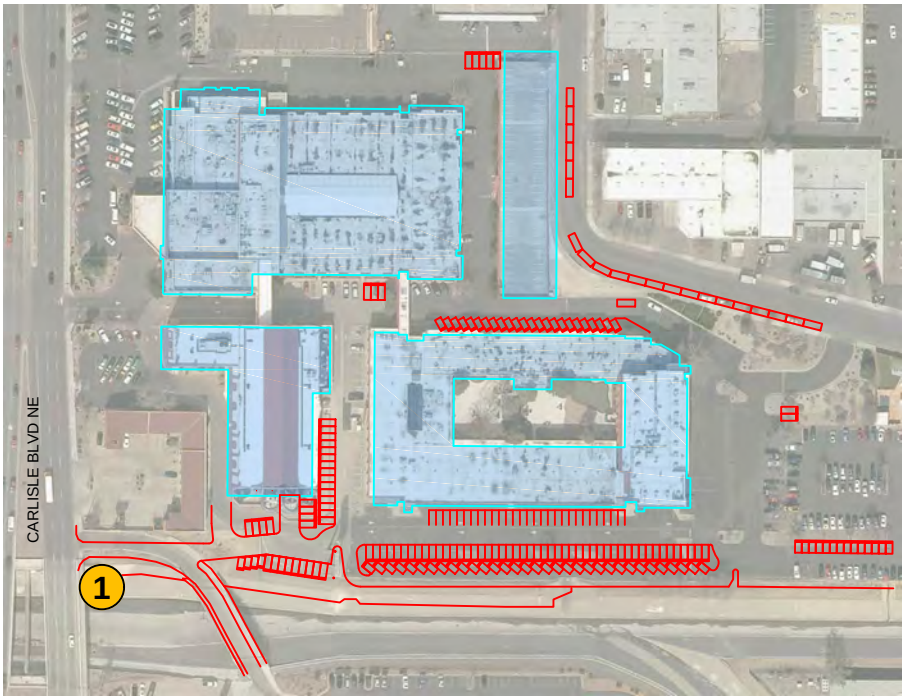
Peak Hour	PHF	NB Approach Peak Hour Volume	NB Approach Peak 15-minute Volume	Assumed Capacity	Estimated v/c*
AM Peak Hour	0.91	1,172 + 167 = 1,339	1,339 / 0.91 = 1,471	2,700	0.54
PM Peak Hour	0.93	1,432 + 197 = 1,629	1,629 / 0.93 = 1,752	2,700	0.65

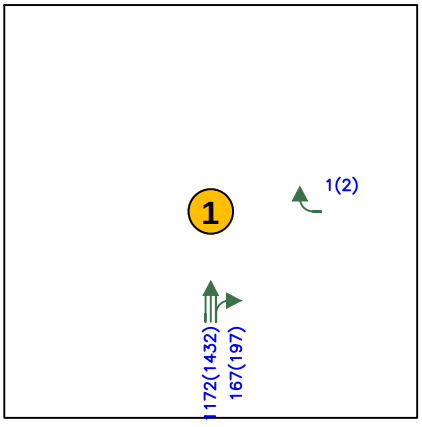
*- v/c estimated by total northbound volume divided by 2,700 (3 lanes with assumed capacity of 900 vphpl)

Table 6 – 2021 No Build AM and PM Unsignalized Intersection Results SimTraffic Results

Intersection/Movement	2021 No Build AM Peak			2021 No Build PM Peak		
	Delay	v/c*	Queue** (ft)	Delay	v/c*	Queue** (ft)
Carlisle and Cutler NB Right	1.1	0.54	0	1.3	0.65	0

*- v/c estimated by total northbound volume divided by 2,700 (3 lanes with assumed capacity of 900 vphpl)
** - SimTraffic 95th percentile queue rounded to next 25-foot increment





AM PHF: 0.91
PM PHF: 0.93

LEGEND

Thru Lanes (# as indicated)

Turning Lanes (# as indicated)

1234(1234) AM(PM) Traffic Counts

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Figure 5
2021 No Build AM (PM) Peak Hour Traffic Volumes

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2. 2021 BUILD TRAFFIC VOLUMES

a) *Cutler Avenue*

The trips generated by the site (Table 4) were assigned to the intersections using the trip percentages and volumes assigned shown in Figure 4. These trips were added to the 2021 No Build traffic projections in Figure 5.

Table 9 shows the calculation of the v/c ratio for the 2021 build scenario.

Table 8 and Figure 6 present a summary of the 2021 Build Peak hour traffic projections and lane geometry for the 2021 Build analysis. Individual intersection output is included in Appendix E.

The entering northbound right continues to show a low delay using SimTraffic results. The v/c ratio is also still within levels considered to be acceptable and not indicative of excessive congestion.

Table 7 – 2021 Build AM and PM Volume-to-Capacity Calculation
Carlisle and Cutler

Peak Hour	PHF	NB Approach Peak Hour Volume	NB Approach Peak 15-minute Volume	Assumed Capacity	Estimated v/c*
AM Peak Hour	0.91	1,172 + 191 = 1,363	1,363 / 0.91 = 1,498	2,700	0.55
PM Peak Hour	0.93	1,432 + 269 = 1,701	1,701 / 0.93 = 1,829	2,700	0.68

*- v/c estimated by total northbound volume divided by 2,700 (3 lanes with assumed capacity of 900 vphpl)

Table 8 – 2021 Build AM and PM Unsignalized Intersection Results
SimTraffic Results

Intersection/Movement	2021 Build AM Peak			2021 Build PM Peak		
	Delay	v/c*	Queue** (ft)	Delay	v/c*	Queue** (ft)
Carlisle and Cutler NB Right	1.1	0.55	0	1.7	0.68	0

*- v/c estimated by total northbound volume divided by 2,700 (3 lanes with assumed capacity of 900 vphpl)
** - SimTraffic 95th percentile queue rounded to next 25-foot increment

b) *Proposed Cutler Entrance*

The proposed entrance from Cutler Avenue into the site was also evaluated. As Cutler Avenue is one-way eastbound, the HCM procedures again do not calculate a delay, as there is no opposing traffic, and therefore no yield or stop (delay). SimTraffic was used to estimate delay.

The delays for entering traffic were low, and the v/c ratio was also acceptable. In this case, with just a single eastbound lane, a lane capacity of 900 vehicles per hour was used in determining the v/c ratio. The PHF of the Carlisle northbound right onto Cutler was used to determine the peak 15-minute flow rate, as that is the only traffic using Cutler.

Table 9 – 2021 Build AM and PM Volume-to-Capacity Calculation
Cutler Site Entrance

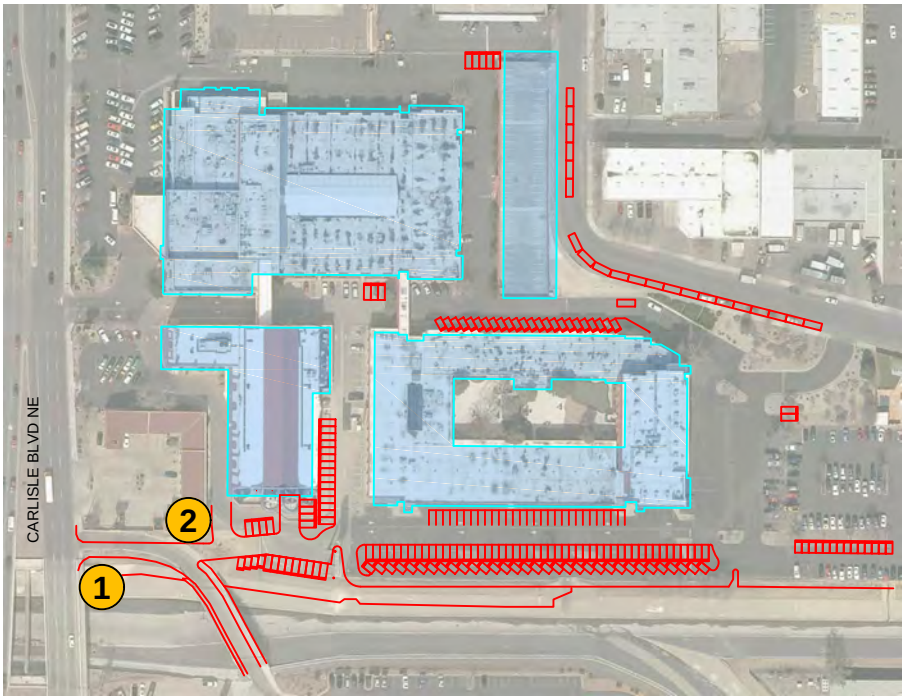
Peak Hour	PHF	NB Approach Peak Hour Volume	NB Approach Peak 15-minute Volume	Assumed Capacity	Estimated v/c*
AM Peak Hour	0.90	191	191 / 0.90 = 212	900	0.24
PM Peak Hour	0.77	269	269 / 0.77 = 350	900	0.39

*- v/c estimated by total northbound volume divided by 900 vphpl (1 lane with assumed capacity of 900 vphpl)

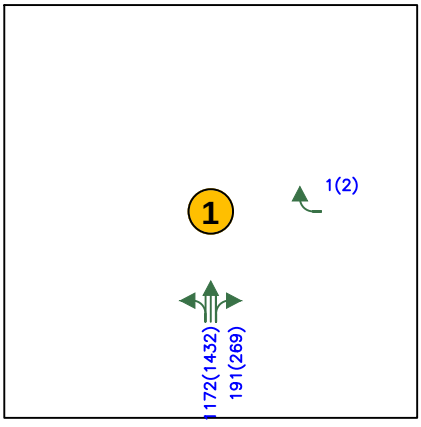
Table 10 – 2021 Build AM and PM Unsignalized Intersection Results
SimTraffic Results

Intersection/Movement	2021 Build AM Peak			2021 Build PM Peak		
	Delay	v/c*	Queue** (ft)	Delay	v/c*	Queue** (ft)
Cutler and Site Entrance						
EB Left	0.9	0.24	0	0.9	0.39	0
EB Through	0.1		0	0.2		0

*- v/c estimated by total eastbound volume divided by 900 (1 lane with assumed capacity of 900 vphpl)
** - SimTraffic 95th percentile queue rounded to next 25-foot increment

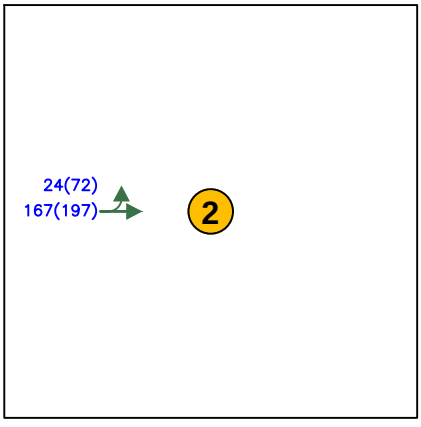


AM PHF: 0.91
PM PHF: 0.93



Carlisle/Cutler

AM PHF: 0.90
PM PHF: 0.77



Cutler/Site Entrance

LEGEND

Thru Lanes (# as indicated)

Turning Lanes (# as indicated)

1234(1234) AM(PM) Traffic Counts

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Figure 6
2021 Build AM (PM) Peak Hour Traffic Volumes

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VII. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The traffic analysis shows that under existing 2018, 2021 No Build, and 2021 Build conditions, the unsignalized intersection of Carlisle Boulevard and Cutler Avenue is expected to operate at an acceptable delay. HCM procedures do not determine a delay for a right turn at an unsignalized intersection; therefore, SimTraffic was used to estimate delay and queue. The SimTraffic delay was minimal, as would be expected with an unsignalized, free movement. SimTraffic also did not report a vehicle queue for the northbound right turning vehicles.

The proposed entrance on Cutler was also evaluated. Again, the HCM procedures do not report a delay, as Cutler is a one-way eastbound roadway, with no opposing traffic to delay the entering vehicles. SimTraffic was again used to evaluate the driveway operations, and found very low delay, with no queue.

A second check was made to determine the volume-to-capacity (v/c) ratio of the approaches to each intersection. An estimate of 900 vehicles per hour per lane was assumed. This is considered reasonable, as a free-flow lane is generally considered to have a capacity of 1,700 – 1,900 vehicles per hour. The 900 vehicles per hours per lane was used as an estimate of the capacity of a roadway with traffic signals that reduce the capacity of a free-flow lane. The v/c ratio was within a range that does not indicate high levels of congestion.

B. RECOMMENDATIONS

Do Not Enter signs (R5-1) should be installed prominently at the proposed entrance to discourage wrong-way traffic to exit via Cutler.

Wayfinding signs should also be installed to direct patrons and residents to the Cutler entrance to the site.

All improvements should be designed to satisfy City of Albuquerque, Manual on Uniform Traffic Control Devices (MUTCD), and American Association of State Highway Transportation Officials (AASHTO) design standards.

Appendix A
Existing Traffic Counts

Mike Henderson Consulting, LLC
5301 Camino Sandia NE
Albuquerque, NM 87111
(505) 275-5706

Collected by: MH10
Count only includes NB Carlisle
& Cutler East of Carlisle

File Name : Carlisle & Cutler
Site Code :
Start Date : 5/10/2018
Page No : 1

Groups Printed- Car - Truck

	Eastbound				Cutler Ave Westbound				Carlisle Blvd Northbound				Carlisle Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:30	0	0	0	0	0	0	0	0	0	158	9	167	0	0	0	0	167
06:45	0	0	0	0	0	0	1	1	0	196	14	210	0	0	0	0	211
Total	0	0	0	0	0	0	1	1	0	354	23	377	0	0	0	0	378
07:00	0	0	0	0	0	0	0	0	0	238	12	250	0	0	0	0	250
07:15	0	0	0	0	0	0	0	0	0	242	24	266	0	0	0	0	266
07:30	0	0	0	0	0	0	0	0	0	261	45	306	0	0	0	0	306
07:45	0	0	0	0	0	0	1	1	0	313	43	356	0	0	0	0	357
Total	0	0	0	0	0	0	1	1	0	1054	124	1178	0	0	0	0	1179
08:00	0	0	0	0	0	0	0	0	0	265	37	302	0	0	0	0	302
08:15	0	0	0	0	0	0	0	0	0	299	37	336	0	0	0	0	336
08:30	0	0	0	0	0	0	0	0	0	269	19	288	0	0	0	0	288
08:45	0	0	0	0	0	0	0	0	0	335	12	347	0	0	0	0	347
Total	0	0	0	0	0	0	0	0	0	1168	105	1273	0	0	0	0	1273
09:00	0	0	0	0	0	0	0	0	0	272	26	298	0	0	0	0	298
09:15	0	0	0	0	0	0	2	2	0	281	15	296	0	0	0	0	298
*** BREAK ***																	
Total	0	0	0	0	0	0	2	2	0	553	41	594	0	0	0	0	596
*** BREAK ***																	
15:00	0	0	0	0	0	0	1	1	0	317	31	348	0	0	0	0	349
15:15	0	0	0	0	0	0	0	0	0	303	33	336	0	0	0	0	336
15:30	0	0	0	0	0	0	0	0	0	289	24	313	0	0	0	0	313
15:45	0	0	0	0	0	0	0	0	0	370	44	414	0	0	0	0	414
Total	0	0	0	0	0	0	1	1	0	1279	132	1411	0	0	0	0	1412
16:00	0	0	0	0	0	0	0	0	0	323	18	341	0	0	0	0	341
16:15	0	0	0	0	0	0	0	0	0	345	29	374	0	0	0	0	374
16:30	0	0	0	0	0	0	1	1	0	329	30	359	0	0	0	0	360
16:45	0	0	0	0	0	0	1	1	0	384	37	421	0	0	0	0	422
Total	0	0	0	0	0	0	2	2	0	1381	114	1495	0	0	0	0	1497
17:00	0	0	0	0	0	0	1	1	0	322	35	357	0	0	0	0	358
17:15	0	0	0	0	0	0	0	0	0	353	62	415	0	0	0	0	415
17:30	0	0	0	0	0	0	0	0	0	331	57	388	0	0	0	0	388
17:45	0	0	0	0	0	0	1	1	0	280	38	318	0	0	0	0	319
Total	0	0	0	0	0	0	2	2	0	1286	192	1478	0	0	0	0	1480
Grand Total	0	0	0	0	0	0	9	9	0	7075	731	7806	0	0	0	0	7815
Apprch %	0	0	0		0	0	100		0	90.6	9.4		0	0	0		
Total %	0	0	0	0	0	0	0.1	0.1	0	90.5	9.4	99.9	0	0	0	0	
Car	0	0	0	0	0	0	9	9	0	6912	726	7638	0	0	0	0	7647
% Car	0	0	0	0	0	0	100	100	0	97.7	99.3	97.8	0	0	0	0	97.9
Truck	0	0	0	0	0	0	0	0	0	163	5	168	0	0	0	0	168
% Truck	0	0	0	0	0	0	0	0	0	2.3	0.7	2.2	0	0	0	0	2.1

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File Name : Carlisle & Cutler
Site Code :
Start Date : 5/10/2018
Page No : 2

	Eastbound				Cutler Ave Westbound				Carlisle Blvd Northbound				Carlisle Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:30 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	0	0	0	0	0	0	0	0	0	261	45	306	0	0	0	0	306
07:45	0	0	0	0	0	0	1	1	0	313	43	356	0	0	0	0	357
08:00	0	0	0	0	0	0	0	0	0	265	37	302	0	0	0	0	302
08:15	0	0	0	0	0	0	0	0	0	299	37	336	0	0	0	0	336
Total Volume	0	0	0	0	0	0	1	1	0	1138	162	1300	0	0	0	0	1301
% App. Total	0	0	0		0	0	100		0	87.5	12.5		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.909	.900	.913	.000	.000	.000	.000	.911
Car	0	0	0	0	0	0	1	1	0	1107	161	1268	0	0	0	0	1269
% Car	0	0	0	0	0	0	100	100	0	97.3	99.4	97.5	0	0	0	0	97.5
Truck	0	0	0	0	0	0	0	0	0	31	1	32	0	0	0	0	32
% Truck	0	0	0	0	0	0	0	0	0	2.7	0.6	2.5	0	0	0	0	2.5
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	0	0	0	0	0	0	1	1	0	384	37	421	0	0	0	0	422
17:00	0	0	0	0	0	0	1	1	0	322	35	357	0	0	0	0	358
17:15	0	0	0	0	0	0	0	0	0	353	62	415	0	0	0	0	415
17:30	0	0	0	0	0	0	0	0	0	331	57	388	0	0	0	0	388
Total Volume	0	0	0	0	0	0	2	2	0	1390	191	1581	0	0	0	0	1583
% App. Total	0	0	0		0	0	100		0	87.9	12.1		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.500	.000	.905	.770	.939	.000	.000	.000	.000	.938
Car	0	0	0	0	0	0	2	2	0	1378	190	1568	0	0	0	0	1570
% Car	0	0	0	0	0	0	100	100	0	99.1	99.5	99.2	0	0	0	0	99.2
Truck	0	0	0	0	0	0	0	0	0	12	1	13	0	0	0	0	13
% Truck	0	0	0	0	0	0	0	0	0	0.9	0.5	0.8	0	0	0	0	0.8

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Start Date : 5/10/2018
Page No : 1

Groups Printed- Bike

	Eastbound					Cutler Ave Westbound					Carlisle Blvd Northbound					Carlisle Blvd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
06:30	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
06:45	0	0	0	0	0	0	0	0	2	2	0	0	1	0	1	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	0	3	3	0	0	1	0	1	0	0	0	0	0	4
07:00	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
07:15	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
07:30	0	0	0	0	0	0	0	0	3	3	0	0	1	0	1	0	0	0	0	0	4
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	8	8	0	0	1	0	1	0	0	0	0	0	9
08:00	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0	0	0	2
08:15	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	4
08:30	0	0	0	0	0	0	0	0	5	5	0	0	1	0	1	0	0	0	0	0	6
08:45	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	12	12	0	0	2	0	2	0	0	0	0	0	14
*** BREAK ***																					
09:15	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
*** BREAK ***																					
15:00	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
15:15	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	6
15:30	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
15:45	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	0	13	13	0	0	0	1	1	0	0	0	0	0	14
*** BREAK ***																					
16:15	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
16:30	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	8
Total	0	0	0	0	0	0	0	0	11	11	0	0	0	0	0	0	0	0	0	0	11
17:00	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	5
17:15	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
17:30	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	0	0	0	1	1	6
17:45	0	0	0	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	6
Total	0	0	0	0	0	0	0	0	19	19	0	0	0	0	0	0	0	0	1	1	20
Grand Total	0	0	0	0	0	0	0	0	69	69	0	0	4	1	5	0	0	0	1	1	75
Apprch %	0	0	0	0		0	0	0	100		0	0	80	20		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	92	92	0	0	5.3	1.3	6.7	0	0	0	1.3	1.3	

Appendix B
2018 Existing Intersection Capacity Analysis

Summary of All Intervals

Run Number	13	14	15	16	17		Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:20	8:20	8:20	8:20	8:20	8:20	8:20
Total Time (min)	90	90	90	90	90	90	90
Time Recorded (min)	80	80	80	80	80	80	80
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1684	1689	1789	1741	1744	1741	1731
Vehs Exited	1677	1684	1805	1735	1748	1737	1731
Starting Vehs	19	18	25	11	19	18	19
Ending Vehs	26	23	9	17	15	22	19
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	850	853	914	886	892	885	880
Travel Time (hr)	23.1	23.3	24.8	23.9	24.1	24.2	23.9
Total Delay (hr)	0.9	0.9	1.1	1.0	1.0	1.0	1.0
Total Stops	2	2	1	0	0	0	1
Fuel Used (gal)	23.2	23.1	24.8	23.7	24.1	24.4	23.9

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:20
Total Time (min)	80

Volumes adjusted by Growth Factors.

Run Number	13	14	15	16	17		Avg
Vehs Entered	1684	1689	1789	1741	1744	1741	1731
Vehs Exited	1677	1684	1805	1735	1748	1737	1731
Starting Vehs	19	18	25	11	19	18	19
Ending Vehs	26	23	9	17	15	22	19
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	850	853	914	886	892	885	880
Travel Time (hr)	23.1	23.3	24.8	23.9	24.1	24.2	23.9
Total Delay (hr)	0.9	0.9	1.1	1.0	1.0	1.0	1.0
Total Stops	2	2	1	0	0	0	1
Fuel Used (gal)	23.2	23.1	24.8	23.7	24.1	24.4	23.9

3: Carlisle & Cutler Performance by movement

Movement	WBR	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Delay (hr)	0.0	0.3	0.1	0.4
Total Del/Veh (s)	2.1	0.7	1.0	0.7
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.0	0.0	0.0	0.0
Total Stops	1	0	0	1
Stop/Veh	1.00	0.00	0.00	0.00
Travel Dist (mi)	0.1	346.7	50.1	396.9
Travel Time (hr)	0.0	9.1	1.6	10.7
Avg Speed (mph)	18	38	32	37
Fuel Used (gal)	0.0	9.3	1.2	10.6
Fuel Eff. (mpg)	37.5	37.2	40.7	37.6
Vehicles Entered	1	1512	218	1731
Vehicles Exited	1	1512	219	1732
Hourly Exit Rate	1	1134	164	1299
Input Volume	1	1138	162	1301
% of Volume	75	100	101	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	0.9
Total Del/Veh (s)	1.9
Stop Delay (hr)	0.0
Stop Del/Veh (s)	0.0
Total Stops	1
Stop/Veh	0.00
Travel Dist (mi)	880.0
Travel Time (hr)	23.9
Avg Speed (mph)	37
Fuel Used (gal)	23.9
Fuel Eff. (mpg)	36.9
Vehicles Entered	1731
Vehicles Exited	1731
Hourly Exit Rate	1298
Input Volume	2602
% of Volume	50
Denied Entry Before	0
Denied Entry After	0

Intersection: 3: Carlisle & Cutler

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	15
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	451
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	13	14	15	16	17		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:20	6:20	6:20	6:20	6:20	6:20	6:20
Total Time (min)	90	90	90	90	90	90	90
Time Recorded (min)	80	80	80	80	80	80	80
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2092	2073	2177	2146	2136	2166	2132
Vehs Exited	2102	2082	2166	2151	2136	2152	2132
Starting Vehs	30	25	14	24	26	14	22
Ending Vehs	20	16	25	19	26	28	22
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	1085	1080	1128	1120	1113	1122	1108
Travel Time (hr)	29.8	29.6	31.1	30.6	30.5	30.7	30.4
Total Delay (hr)	1.5	1.4	1.6	1.6	1.6	1.6	1.5
Total Stops	3	3	1	6	6	5	4
Fuel Used (gal)	29.5	29.3	31.0	30.5	30.3	30.5	30.2

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:20
Total Time (min)	80

Volumes adjusted by Growth Factors.

Run Number	13	14	15	16	17		Avg
Vehs Entered	2092	2073	2177	2146	2136	2166	2132
Vehs Exited	2102	2082	2166	2151	2136	2152	2132
Starting Vehs	30	25	14	24	26	14	22
Ending Vehs	20	16	25	19	26	28	22
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	1085	1080	1128	1120	1113	1122	1108
Travel Time (hr)	29.8	29.6	31.1	30.6	30.5	30.7	30.4
Total Delay (hr)	1.5	1.4	1.6	1.6	1.6	1.6	1.5
Total Stops	3	3	1	6	6	5	4
Fuel Used (gal)	29.5	29.3	31.0	30.5	30.3	30.5	30.2

3: Carlisle & Cutler Performance by movement

Movement	WBR	NBT	NBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Delay (hr)	0.0	0.5	0.1	0.6
Total Del/Veh (s)	3.5	1.0	1.3	1.0
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	3.2	0.0	0.0	0.0
Total Stops	4	0	0	4
Stop/Veh	1.00	0.00	0.00	0.00
Travel Dist (mi)	0.3	449.3	63.9	513.5
Travel Time (hr)	0.0	11.9	2.0	13.9
Avg Speed (mph)	17	38	32	37
Fuel Used (gal)	0.0	12.0	1.5	13.6
Fuel Eff. (mpg)	41.5	37.4	41.6	37.9
Vehicles Entered	4	1863	265	2132
Vehicles Exited	4	1863	264	2131
Hourly Exit Rate	3	1397	198	1598
Input Volume	2	1390	191	1583
% of Volume	150	101	104	101
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.5
Total Del/Veh (s)	2.5
Stop Delay (hr)	0.0
Stop Del/Veh (s)	0.0
Total Stops	4
Stop/Veh	0.00
Travel Dist (mi)	1108.1
Travel Time (hr)	30.4
Avg Speed (mph)	37
Fuel Used (gal)	30.2
Fuel Eff. (mpg)	36.7
Vehicles Entered	2132
Vehicles Exited	2132
Hourly Exit Rate	1599
Input Volume	3166
% of Volume	51
Denied Entry Before	0
Denied Entry After	0

Intersection: 3: Carlisle & Cutler

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	31
Average Queue (ft)	3
95th Queue (ft)	17
Link Distance (ft)	451
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Appendix C
Forecast Turning Movements and Background Traffic Growth

WYNDHAM ALBUQUERQUE HOTEL REMODEL
EXISTING & PROJECTED TURNING MOVEMENTS

INTERSECTION: Carlisle and Cutler

Southbound Carlsile not counted as does not impact operations of Cutler due to median

AM Peak Hour

	Southbound Carlisle			Westbound Cutler			Northbound Carlisle			Eastbound Cutler		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2018)	0	0	0	0	0	1	0	1,138	162	0	0	0
Background Growth (2018-2021)	0	0	0	0	0	0	0	34	5	0	0	0
Approved Development												
2021 No Build	0	0	0	0	0	1	0	1,172	167	0	0	0
Site Enter									24			
Site Exit												
2021 Build	0	0	0	0	0	1	0	1,172	191	0	0	0
PHF	*0.910*			*0.910*			*0.910*			*0.910*		
HV %		*2*			*2*			*3*			*2*	

PM Peak Hour

	Southbound Carlisle			Westbound Cutler			Northbound Carlisle			Eastbound Cutler		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2018)	0	0	0	0	0	2	0	1,390	191	0	0	0
Background Growth (2018-2021)	0	0	0	0	0	0	0	42	6	0	0	0
Approved Development												
0												
0												
2021 No Build	0	0	0	0	0	2	0	1,432	197	0	0	0
Site Enter									72			
Site Exit												
2021 Build	0	0	0	0	0	2	0	1,432	269	0	0	0
PHF	*0.930*			*0.930*			*0.930*			*0.930*		
HV %		*2*			*2*			*2*			*2*	

growth rates	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Trip Distribution % Enter									65.0%				Site
Trip Distribution % Exit	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

WYNDHAM ALBUQUERQUE HOTEL REMODEL
EXISTING & PROJECTED TURNING MOVEMENTS

INTERSECTION: Cutler and Site Entrance

AM Peak Hour

	Southbound Entrance			Westbound Cutler			Northbound Entrance			Eastbound Cutler		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2018)	0	0	0	0	0	0	0	0	0	0	162	0
Background Growth (2018-2021)	0	0	0	0	0	0	0	0	0	0	5	0
Approved Development												
2021 No Build	0	0	0	0	0	0	0	0	0	0	167	0
Site Enter										24		
Site Exit												
2021 Build	0	0	0	0	0	0	0	0	0	24	167	0
PHF	*0.920*			*0.920*			*0.920*			*0.920*		
HV %		*0*			*2*			*2*			*2*	

PM Peak Hour

	Southbound Entrance			Westbound Cutler			Northbound Entrance			Eastbound Cutler		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Existing Volumes (2018)	0	0	0	0	0	0	0	0	0	0	191	0
Background Growth (2018-2021)	0	0	0	0	0	0	0	0	0	0	6	0
Approved Development												
0												
0												
2021 No Build	0	0	0	0	0	0	0	0	0	0	197	0
Site Enter										72		
Site Exit												
	0	0	0	0	0	0	0	0	0	72	197	0
PHF	*0.920*			*0.920*			*0.920*			*0.920*		
HV %		*2*			*2*			*2*			*2*	

growth rates	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Trip Distribution % Enter										65.0%			Site
Trip Distribution % Exit	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Wyndham Albuquerque Hotel and Convention Remodel
Growth Rate Determination

AWDT on Carlisle (N ofI-40)

Year	AWDT
2012	31,313
2013	31,188
2014	30,317
2015	30,438
2016	30,529

Linear Growth Rate = {[(30,529 - 31,313)/4]/30,529}x100= -0.64%

Regression Output	
R Square	0.64
Standard Error	3.19E+02
Observations	5
Intercept	497,602
Std Err of Intercept	2.E+05
Coefficient	-232
Std Err of Coefficient	101

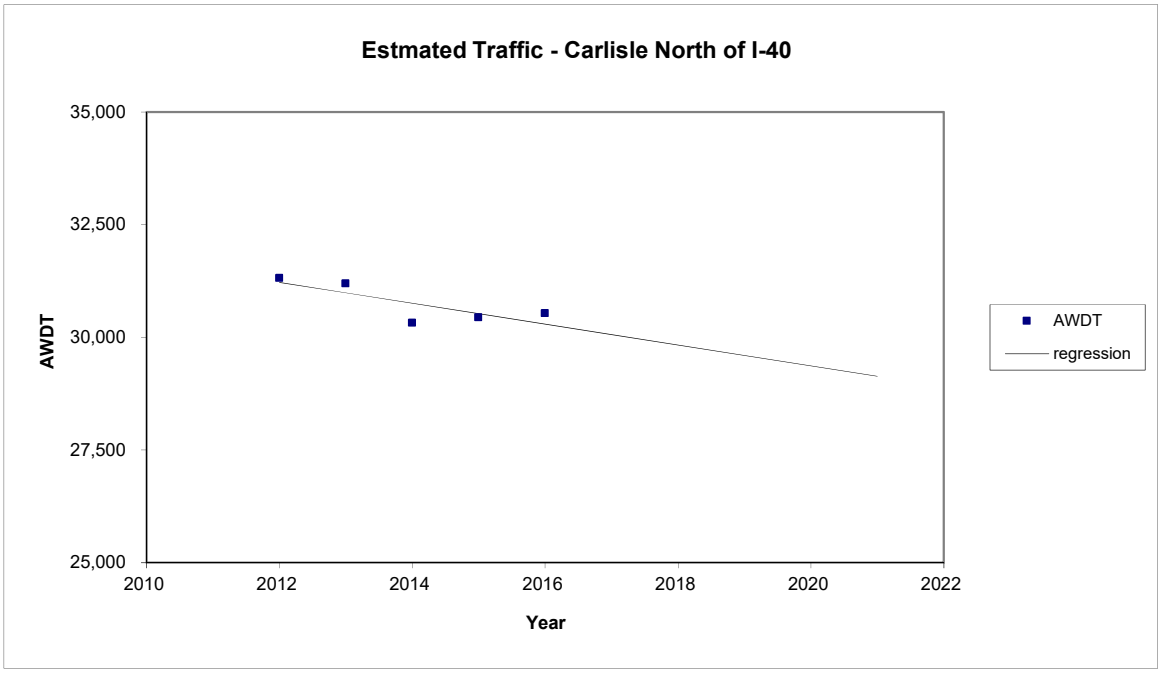
Regression Equation
AWDT = -232 x Year + 497,602

Coefficient Growth Rate -0.76%

Projected AWDT

2012	31,221
2013	30,989
2014	30,757
2015	30,525
2016	30,293
2017	30,062
2018	29,830
2019	29,598
2020	29,366
2021	29,134

Estimated Annual Growth Rate
[(29,134-30,529)/30,529) x 100% = -4.57%
-4.57%/5 = -0.91%



Appendix D
2021 No Build Intersection Capacity Analysis

Summary of All Intervals

Run Number	13	14	15	16	17		Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:20	8:20	8:20	8:20	8:20	8:20	8:20
Total Time (min)	90	90	90	90	90	90	90
Time Recorded (min)	80	80	80	80	80	80	80
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1740	1765	1823	1806	1760	1805	1783
Vehs Exited	1735	1760	1832	1801	1763	1800	1781
Starting Vehs	18	18	19	12	20	16	17
Ending Vehs	23	23	10	17	17	21	19
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	882	892	931	919	896	918	906
Travel Time (hr)	24.0	24.4	25.3	24.9	24.3	25.0	24.6
Total Delay (hr)	1.0	1.0	1.1	1.1	1.0	1.1	1.1
Total Stops	2	2	1	1	0	0	1
Fuel Used (gal)	24.0	24.2	25.2	24.7	24.3	25.3	24.6

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:20
Total Time (min)	80

Volumes adjusted by Growth Factors.

Run Number	13	14	15	16	17		Avg
Vehs Entered	1740	1765	1823	1806	1760	1805	1783
Vehs Exited	1735	1760	1832	1801	1763	1800	1781
Starting Vehs	18	18	19	12	20	16	17
Ending Vehs	23	23	10	17	17	21	19
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	882	892	931	919	896	918	906
Travel Time (hr)	24.0	24.4	25.3	24.9	24.3	25.0	24.6
Total Delay (hr)	1.0	1.0	1.1	1.1	1.0	1.1	1.1
Total Stops	2	2	1	1	0	0	1
Fuel Used (gal)	24.0	24.2	25.2	24.7	24.3	25.3	24.6

3: Carlisle & Cutler Performance by movement

Movement	WBR	NBT	NBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Delay (hr)	0.0	0.3	0.1	0.4
Total Del/Veh (s)	2.6	0.8	1.1	0.8
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.5	0.0	0.0	0.0
Total Stops	1	0	0	1
Stop/Veh	1.00	0.00	0.00	0.00
Travel Dist (mi)	0.1	357.0	51.6	408.6
Travel Time (hr)	0.0	9.4	1.6	11.0
Avg Speed (mph)	18	38	32	37
Fuel Used (gal)	0.0	9.6	1.3	10.9
Fuel Eff. (mpg)	38.0	37.2	40.7	37.6
Vehicles Entered	1	1557	225	1783
Vehicles Exited	1	1558	226	1785
Hourly Exit Rate	1	1169	170	1339
Input Volume	1	1172	167	1340
% of Volume	75	100	101	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.0
Total Del/Veh (s)	2.0
Stop Delay (hr)	0.0
Stop Del/Veh (s)	0.0
Total Stops	1
Stop/Veh	0.00
Travel Dist (mi)	906.2
Travel Time (hr)	24.6
Avg Speed (mph)	37
Fuel Used (gal)	24.6
Fuel Eff. (mpg)	36.8
Vehicles Entered	1783
Vehicles Exited	1781
Hourly Exit Rate	1336
Input Volume	2680
% of Volume	50
Denied Entry Before	0
Denied Entry After	0

Intersection: 3: Carlisle & Cutler

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	20
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	451
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	13	14	15	16	17		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:20	6:20	6:20	6:20	6:20	6:20	6:20
Total Time (min)	90	90	90	90	90	90	90
Time Recorded (min)	80	80	80	80	80	80	80
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2093	2131	2266	2177	2192	2240	2183
Vehs Exited	2111	2128	2247	2175	2192	2217	2178
Starting Vehs	29	18	14	21	26	13	21
Ending Vehs	11	21	33	23	26	36	25
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	1088	1110	1171	1134	1143	1155	1134
Travel Time (hr)	29.9	30.4	32.3	31.1	31.3	31.6	31.1
Total Delay (hr)	1.5	1.5	1.7	1.7	1.6	1.6	1.6
Total Stops	3	4	3	6	5	5	4
Fuel Used (gal)	29.6	30.2	32.2	31.0	31.1	31.6	30.9

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:20
Total Time (min)	80

Volumes adjusted by Growth Factors.

Run Number	13	14	15	16	17		Avg
Vehs Entered	2093	2131	2266	2177	2192	2240	2183
Vehs Exited	2111	2128	2247	2175	2192	2217	2178
Starting Vehs	29	18	14	21	26	13	21
Ending Vehs	11	21	33	23	26	36	25
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	1088	1110	1171	1134	1143	1155	1134
Travel Time (hr)	29.9	30.4	32.3	31.1	31.3	31.6	31.1
Total Delay (hr)	1.5	1.5	1.7	1.7	1.6	1.6	1.6
Total Stops	3	4	3	6	5	5	4
Fuel Used (gal)	29.6	30.2	32.2	31.0	31.1	31.6	30.9

3: Carlisle & Cutler Performance by movement

Movement	WBR	NBT	NBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Delay (hr)	0.0	0.5	0.1	0.6
Total Del/Veh (s)	3.8	1.0	1.3	1.1
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	3.5	0.0	0.0	0.0
Total Stops	4	0	0	4
Stop/Veh	1.00	0.00	0.00	0.00
Travel Dist (mi)	0.4	459.6	65.5	525.6
Travel Time (hr)	0.0	12.2	2.1	14.3
Avg Speed (mph)	17	38	32	37
Fuel Used (gal)	0.0	12.3	1.6	13.9
Fuel Eff. (mpg)	39.2	37.4	41.5	37.8
Vehicles Entered	4	1907	272	2183
Vehicles Exited	4	1904	272	2180
Hourly Exit Rate	3	1428	204	1635
Input Volume	2	1432	197	1631
% of Volume	150	100	104	100
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.5
Total Del/Veh (s)	2.5
Stop Delay (hr)	0.0
Stop Del/Veh (s)	0.0
Total Stops	4
Stop/Veh	0.00
Travel Dist (mi)	1133.6
Travel Time (hr)	31.1
Avg Speed (mph)	37
Fuel Used (gal)	30.9
Fuel Eff. (mpg)	36.6
Vehicles Entered	2183
Vehicles Exited	2178
Hourly Exit Rate	1634
Input Volume	3262
% of Volume	50
Denied Entry Before	0
Denied Entry After	0

Intersection: 3: Carlisle & Cutler

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	31
Average Queue (ft)	3
95th Queue (ft)	18
Link Distance (ft)	451
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0

Appendix E
2021 Build Intersection Capacity Analysis

Summary of All Intervals

Run Number	13	14	15	16	17		Avg
Start Time	6:50	6:50	6:50	6:50	6:50	6:50	6:50
End Time	8:20	8:20	8:20	8:20	8:20	8:20	8:20
Total Time (min)	90	90	90	90	90	90	90
Time Recorded (min)	80	80	80	80	80	80	80
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	1850	1881	1940	1801	1828	1849	1858
Vehs Exited	1843	1887	1944	1804	1825	1841	1857
Starting Vehs	18	28	23	17	19	14	20
Ending Vehs	25	22	19	14	22	22	21
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	925	952	981	918	921	934	939
Travel Time (hr)	25.4	26.1	26.8	24.9	25.0	25.5	25.6
Total Delay (hr)	1.1	1.2	1.2	1.1	1.1	1.2	1.2
Total Stops	0	3	0	1	0	0	1
Fuel Used (gal)	25.4	26.1	26.8	25.0	25.1	25.6	25.7

Interval #0 Information Seeding

Start Time	6:50
End Time	7:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:20
Total Time (min)	80

Volumes adjusted by Growth Factors.

Run Number	13	14	15	16	17		Avg
Vehs Entered	1850	1881	1940	1801	1828	1849	1858
Vehs Exited	1843	1887	1944	1804	1825	1841	1857
Starting Vehs	18	28	23	17	19	14	20
Ending Vehs	25	22	19	14	22	22	21
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	925	952	981	918	921	934	939
Travel Time (hr)	25.4	26.1	26.8	24.9	25.0	25.5	25.6
Total Delay (hr)	1.1	1.2	1.2	1.1	1.1	1.2	1.2
Total Stops	0	3	0	1	0	0	1
Fuel Used (gal)	25.4	26.1	26.8	25.0	25.1	25.6	25.7

1: Carlisle & Cutler Performance by movement

Movement	WBR	NBT	NBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Delay (hr)	0.0	0.4	0.1	0.4
Total Del/Veh (s)	1.9	0.8	1.1	0.8
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.0	0.0	0.0	0.0
Total Stops	1	0	0	1
Stop/Veh	1.00	0.00	0.00	0.00
Travel Dist (mi)	0.0	366.9	58.7	425.7
Travel Time (hr)	0.0	9.7	1.8	11.5
Avg Speed (mph)	7	38	32	37
Fuel Used (gal)	0.0	9.9	1.4	11.3
Fuel Eff. (mpg)	23.9	37.1	40.9	37.6
Vehicles Entered	1	1601	256	1858
Vehicles Exited	1	1600	256	1857
Hourly Exit Rate	1	1200	192	1393
Input Volume	1	1207	197	1405
% of Volume	75	99	97	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: Cutler & Site Performance by movement

Movement	EBL	EBT	All
Denied Delay (hr)	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0
Total Del/Veh (s)	0.9	0.1	0.2
Stop Delay (hr)	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.0	0.0
Total Stops	0	0	0
Stop/Veh	0.00	0.00	0.00
Travel Dist (mi)	0.9	6.2	7.2
Travel Time (hr)	0.1	0.4	0.5
Avg Speed (mph)	13	15	14
Fuel Used (gal)	0.1	0.6	0.6
Fuel Eff. (mpg)	15.6	11.2	11.7
Vehicles Entered	33	223	256
Vehicles Exited	33	223	256
Hourly Exit Rate	25	167	192
Input Volume	24	173	197
% of Volume	103	97	97
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.1
Total Del/Veh (s)	2.1
Stop Delay (hr)	0.0
Stop Del/Veh (s)	0.0
Total Stops	1
Stop/Veh	0.00
Travel Dist (mi)	938.7
Travel Time (hr)	25.6
Avg Speed (mph)	37
Fuel Used (gal)	25.7
Fuel Eff. (mpg)	36.6
Vehicles Entered	1858
Vehicles Exited	1857
Hourly Exit Rate	1393
Input Volume	3001
% of Volume	46
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Carlisle & Cutler

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	10
Average Queue (ft)	1
95th Queue (ft)	7
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Cutler & Site

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Run Number	13	14	15	16	17		Avg
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:20	6:20	6:20	6:20	6:20	6:20	6:20
Total Time (min)	90	90	90	90	90	90	90
Time Recorded (min)	80	80	80	80	80	80	80
# of Intervals	2	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1	1
Vehs Entered	2259	2320	2371	2272	2331	2344	2316
Vehs Exited	2254	2332	2372	2257	2326	2344	2314
Starting Vehs	25	36	19	17	18	18	21
Ending Vehs	30	24	18	32	23	18	24
Denied Entry Before	0	0	1	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	1125	1160	1190	1137	1169	1174	1159
Travel Time (hr)	31.2	32.4	33.0	31.5	32.2	32.7	32.2
Total Delay (hr)	1.6	1.8	1.9	1.7	1.7	1.8	1.8
Total Stops	2	4	4	4	3	1	3
Fuel Used (gal)	31.1	32.2	32.8	31.4	32.2	32.8	32.1

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:20
Total Time (min)	80

Volumes adjusted by Growth Factors.

Run Number	13	14	15	16	17		Avg
Vehs Entered	2259	2320	2371	2272	2331	2344	2316
Vehs Exited	2254	2332	2372	2257	2326	2344	2314
Starting Vehs	25	36	19	17	18	18	21
Ending Vehs	30	24	18	32	23	18	24
Denied Entry Before	0	0	1	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Travel Distance (mi)	1125	1160	1190	1137	1169	1174	1159
Travel Time (hr)	31.2	32.4	33.0	31.5	32.2	32.7	32.2
Total Delay (hr)	1.6	1.8	1.9	1.7	1.7	1.8	1.8
Total Stops	2	4	4	4	3	1	3
Fuel Used (gal)	31.1	32.2	32.8	31.4	32.2	32.8	32.1

1: Carlisle & Cutler Performance by movement

Movement	WBR	NBT	NBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.1
Denied Del/Veh (s)	0.1	0.1	0.2	0.1
Total Delay (hr)	0.0	0.6	0.2	0.7
Total Del/Veh (s)	2.6	1.0	1.7	1.1
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	2.9	0.0	0.0	0.0
Total Stops	3	0	0	3
Stop/Veh	1.00	0.00	0.00	0.00
Travel Dist (mi)	0.0	447.1	82.7	529.8
Travel Time (hr)	0.0	11.9	2.7	14.6
Avg Speed (mph)	7	38	31	37
Fuel Used (gal)	0.0	12.1	2.0	14.1
Fuel Eff. (mpg)	24.3	37.1	41.0	37.7
Vehicles Entered	3	1952	361	2316
Vehicles Exited	3	1951	362	2316
Hourly Exit Rate	2	1463	272	1737
Input Volume	2	1475	277	1754
% of Volume	112	99	98	99
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

2: Cutler & Site Performance by movement

Movement	EBL	EBT	All
Denied Delay (hr)	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0
Total Delay (hr)	0.0	0.0	0.0
Total Del/Veh (s)	0.9	0.2	0.4
Stop Delay (hr)	0.0	0.0	0.0
Stop Del/Veh (s)	0.0	0.0	0.0
Total Stops	0	0	0
Stop/Veh	0.00	0.00	0.00
Travel Dist (mi)	2.6	7.4	10.1
Travel Time (hr)	0.2	0.5	0.7
Avg Speed (mph)	12	15	14
Fuel Used (gal)	0.2	0.7	0.8
Fuel Eff. (mpg)	15.0	11.3	12.1
Vehicles Entered	94	268	362
Vehicles Exited	94	268	362
Hourly Exit Rate	71	201	272
Input Volume	72	205	277
% of Volume	98	98	98
Denied Entry Before	0	0	0
Denied Entry After	0	0	0

Total Network Performance

Denied Delay (hr)	0.1
Denied Del/Veh (s)	0.1
Total Delay (hr)	1.7
Total Del/Veh (s)	2.6
Stop Delay (hr)	0.0
Stop Del/Veh (s)	0.0
Total Stops	3
Stop/Veh	0.00
Travel Dist (mi)	1159.2
Travel Time (hr)	32.2
Avg Speed (mph)	36
Fuel Used (gal)	32.1
Fuel Eff. (mpg)	36.1
Vehicles Entered	2316
Vehicles Exited	2314
Hourly Exit Rate	1736
Input Volume	3777
% of Volume	46
Denied Entry Before	0
Denied Entry After	0

Intersection: 1: Carlisle & Cutler

Movement	WB
Directions Served	LTR
Maximum Queue (ft)	30
Average Queue (ft)	2
95th Queue (ft)	15
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Cutler & Site

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0