

Appendix A:

Scoping Meeting Notes

Jonathon Kruse

From: Jonathon Kruse
Sent: Thursday, December 19, 2019 5:57 PM
To: margaret.haynes@state.nm.us
Cc: Jake.Palmer@accelerateddevco.com; Trey@accelerateddevco.com; Perry; Paul Barricklow
Subject: 700 Coors Blvd Coffee Shop (Fortuna & Coors) Traffic Study
Attachments: Access Exhibit 112719.pdf; ADS-DB-700 Coors - Concept Site Plan (11-26-19) v2.pdf

Margaret,

We are assisting Accelerated Development Services with traffic engineering services for a coffee shop to be located at 700 Coors Blvd on the NE corner of Coors Blvd & Fortuna. It is understood that a scoping meeting for the traffic study was held with another consultant a few months ago but the consultant's schedule could not accommodate an effective schedule for this development. Attached is a new site plan to accompany the discussion items and narratives below.

Confirming our understanding of the study's requirements as set forth in the scoping meeting is as follows:

- Coordinate with New Mexico Department of Transportation to obtain outline of report criterion (this email).
- Calculate Trip Generation volumes based on site plan provided by the developer or developer's representative (square footage of building proposed and other land uses on site shall be defined on site plan.) Developer and/or developer's architect/engineer shall notify Engineer of any significant updates to the proposed site plan that would change the nature of the Traffic Impact Study (i.e., changes in land use, square footage of buildings, locations and numbers of access driveways, etc.) The current project is described as the development of a proposed 862 SF coffee shop building with no indoor seating.
- Perform AM and PM Peak Hour Traffic Counts (demand volumes using aerial drone) for the existing intersections of Fortuna Rd. / Coors Blvd. and Fortuna Rd. / existing driveway east of Coors Blvd.
- Determine Trip Distribution and Trip Assignments of the newly generated traffic based on Mid, Region Council of Governments' Socioeconomic Forecasts for the implementation year (± 2020) as agreed upon in the scoping meeting. Trip Distribution / Trip Assignments will be calculated based on population data within a two-mile radius of the project.
- Determine "NO BUILD" and "BUILD" traffic intersection volumes for the implementation year (2020).
- Utilize the implementation year "NO BUILD" and "BUILD" traffic volumes to perform HCS signalized and / or unsignalized intersection analyses for the following intersections:
 - Fortuna Rd. / Coors Blvd.
 - Multiple Period Analysis required if signalized intersection peak hour analysis results in $v/c > 1$ for any turning movement.
 - Fortuna Rd. / Access driveway (aligned with existing driveway on south side of Fortuna.
 - Coors Blvd & North Existing Shared Access Driveway (See new site plan attached to this email).
- Perform queuing analysis for each lane group for each approach for every intersection analyzed in this study.
- Evaluate access intersections and driveways to determine need for auxiliary deceleration lanes (right turn and left turn).
- Write a report of analysis and findings to present to the New Mexico Department of Transportation for review and comment.
- Make recommendations for necessary measures to mitigate impact of this development on the adjacent transportation system.

Based on the requirements listed above, traffic study technical memorandum is proposed to follow the outline below:

1. Introduction
2. Project Location & Site Plan
 - a. Site Access

3. Study Area, Area Land Use, and Streets Narrative Summary
 - a. Study Area
 - i. Area Land Use
 - ii. Streets
 - iii. Intersections
 - b. Transit
 - c. Multimodal Connectivity
 - d. Current Adjacent Projects
4. Existing conditions Analysis
 - a. Data Collection
 - i. Demand volumes at Coors Blvd & Fortuna
 - b. Level of Service and Capacity Analysis
5. Build Year (No Build & Buildout) Analysis
 - a. Traffic Volumes
 - i. Traffic Projections
 - b. Adjacent Development Trip Overlays (if any)
 - c. Trip Generation
 - d. Trip Distribution and Assignment
 - e. Level of Service, Capacity, and Queueing Analysis
 - f. Capacity Mitigations and Street Improvements
6. Development Site Sight Specific Observations and Recommendations
7. Auxiliary Lane Analysis
8. Summary of Results & Recommendations

Please let us know if this concurs with NMDOT requirements. We look forward to your reply.

Thank you,
Jon

JONATHON KRUSE, PE, PTOE
PROJECT ENGINEER

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Scoping was amended with the following changes on January 6, 2020:

- Study will adhere to “Traffic Study Requirements” dated November 25, 2020.
- PM analysis period not required.
- Horizon year not required.

SUBJECT: Traffic Study Requirements

DATE: November 25, 2019

TO: Whom It May Concern

FROM: District Three Traffic

According to NMAC 18.31.6.16, a traffic study shall be required for all land development directly or indirectly impacting a state highway facility. As a part of the second tier, the Traffic Impact Analysis, the following shall be required as a part of the study.

Software

NMDOT requires all traffic analysis be completed utilizing the latest version of the Highway Capacity Software based on the Highway Capacity Manual, 6th Edition.

Demand Volumes

Demand traffic volumes must be captured at all scoped intersections. Demand traffic volumes consist of not only the vehicles that enter an intersection from a particular approach or lane group during a 15 minute analysis period but also those vehicles that arrived at the intersection during the current 15 minute period but have not yet entered the intersection at the conclusion of the 15 minute time period. An exhibit listing the following shall be included in the report: traffic volume entering the intersection in the 15 minute period + queued traffic volume that arrived in the same 15 minute period but has not yet entered the intersection at the conclusion of the 15 minute period – queued traffic that arrived during the previous 15 minute period but entered the intersection during the current 15 minute period. This shall be provided for each 15 minute period that volumes are provided.

Field Data Collection

- Right-Turn-On-Red
- Parking if within 250-feet from stop bar
- Buses Stopping if in travel lane, how long
- Heavy Vehicles – Percentage per hour
- Lane Utilization estimate for multiple-lane movement groups
 - o Shared lane vehicle counts for each movement
- Pedestrian and Bicycles
- Intersection Lane Configuration
- Signal Controller Settings to include but not limited to:
 - o Vehicle extension intervals

- o Actuated movements
- o Min/max green times
- o Recall settings
- o Coordination data such as offsets and phase reference points
- o Refer to Exhibit 19-11 on page 19-23 for any other required input data
- Saturation flow rates to be calibrated by location
- Proportion arriving on green (signalized intersections)
- Field measured signal phases on any adaptive signal control technology.

Multiple Period Analysis

The multiple period analysis shall be required for oversaturated conditions in all analysis periods including horizon analysis periods. The initial analysis period for the Implementation Year Build and No Build and the Horizon Year Build and No Build will be the peak 15 minute period of demand traffic volume at a particular intersection or analysis area in the case of multiple intersection analysis. Peak hour factors are not needed if the peak 15 minutes is identified. The peak 15 minute volumes will then be multiplied by 4 (again without the use of peak hour factors) to perform the traffic analysis. If the initial analysis period shows one or more movements with a volume/capacity ratio > 1 , the analysis will be repeated using the preceding 15 minute traffic volumes. This process shall be repeated until an analysis period is found with no movements with v/c ratios > 1 . Using this 15 minute time interval as the initial analysis period, a multiple period traffic analysis will be performed for consecutive 15 minute time intervals until the interval is found in which all movements return to a state where $v/c < 1$. Delay and queueing results shall be reported for each 15 minute period in this interval.

Implementation Year

In the Implementation Year No Build scenario, capacity for each individual movement shall be equal to or greater than the actual volume counted entering the intersection (i.e. observed volumes not demand volumes). If a movement's calculated capacity is less than the counted volume, the default values for the analysis should be evaluated (i.e. saturated flow rates, controller settings, percent arriving on green, etc.) and adjusted.

Queue Analysis

Queues must be calculated per the HCM, 6th Edition Methodology. Only 95th percentile queues are needed.

Urban Street Segment

If the traffic study requires analysis of multiple intersections on the same route, then those intersections need to be analyzed utilizing the Urban Street Segment instead of as isolated intersections.

Safety Analysis

The safety analysis required for this section shall include:

1. Three (3) years of crash data must be obtained for all study intersections and summarized in the safety section of the report. Crash diagrams are not required. Crash reports may be requested online via the New Mexico Statewide Traffic Records System, <http://nmtrafficrecords.com/resources/data-request/>
2. Field review of sight distance.
3. Following the Highway Safety Manual, current edition provide:
 - a. Predicted number of crashes for the existing condition
 - b. Calibrated predicted number of crashes based on actual data
 - c. Predicted number of crashes for the proposed site condition

Existing Conditions/No Build Analysis – Signalized Intersections

The existing conditions analysis should be completed utilizing the existing signal timing for that signalized intersection. The signal should NOT be optimized. The existing conditions write-up should discuss if signals are part of a coordinated system, if so what are the limits of that system.

Full Build Analysis – Signalized Intersections

The Full Build analysis on an isolated intersection may be optimized. For all other intersections the full build analysis should first be completed utilizing the existing signal timing for that signalized intersection. Signals located within a coordinated system may only be optimized under two conditions: (1) if a full corridor signal timing plan is completed or (2) if the coordinated phases at those signals are not altered in any way (i.e. green time or offsets).

Electronic Files

At each submittal, the software analysis files shall be provided.

Appendix B:

Turning Movement Counts

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

Full Length (6 AM-9 AM, 11 AM-2 PM, 3 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US

Leg Direction	Coors Blvd Southbound								Fortuna Westbound							
Time	R	T	L	U	RR	App	Ped*	R	T	L	U	RR	App	Ped*		
2019-11-19 6:00AM	3	68	0	0	0	71	0	9	0	1	0	5	15	1		
6:15AM	15	112	1	0	2	130	0	8	3	5	0	9	25	0		
6:30AM	14	136	4	0	2	156	0	9	1	4	0	10	24	0		
6:45AM	31	211	11	1	7	261	0	12	11	5	0	6	34	0		
Hourly Total	63	527	16	1	11	618	0	38	15	15	0	30	98	1		
7:00AM	34	176	16	1	22	249	0	9	41	8	0	5	63	0		
7:15AM	27	200	25	1	17	270	1	21	50	7	0	7	85	0		
7:30AM	13	203	22	1	1	240	0	34	9	16	0	8	67	0		
7:45AM	16	226	20	0	4	266	2	35	16	18	0	2	71	0		
Hourly Total	90	805	83	3	44	1025	3	99	116	49	0	22	286	0		
8:00AM	8	247	12	1	6	274	1	14	3	30	0	12	59	0		
8:15AM	8	241	13	2	2	266	0	7	4	9	0	8	28	0		
8:30AM	10	225	13	3	1	252	0	14	3	13	0	20	50	0		
8:45AM	6	203	11	1	4	225	0	10	2	7	0	7	26	0		
Hourly Total	32	916	49	7	13	1017	1	45	12	59	0	47	163	0		
11:00AM	11	230	17	1	2	261	0	3	2	9	0	11	25	0		
11:15AM	10	270	20	2	3	305	1	8	3	10	0	11	32	0		
11:30AM	9	230	19	2	2	262	0	9	3	11	0	8	31	0		
11:45AM	15	275	15	1	3	309	0	4	3	14	0	9	30	1		
Hourly Total	45	1005	71	6	10	1137	1	24	11	44	0	39	118	1		
12:00PM	18	252	25	2	1	298	0	6	3	17	0	11	37	0		
12:15PM	11	260	13	3	1	288	0	11	0	14	0	13	38	0		
12:30PM	18	307	20	3	1	349	0	9	4	10	0	7	30	0		
12:45PM	13	276	14	2	1	306	0	11	3	11	0	11	36	0		
Hourly Total	60	1095	72	10	4	1241	0	37	10	52	0	42	141	0		
1:00PM	5	282	12	0	1	300	0	6	2	16	0	8	32	0		
1:15PM	22	276	25	2	2	327	0	5	9	16	0	3	33	0		
1:30PM	10	291	27	4	3	335	0	14	3	19	0	17	53	2		
1:45PM	23	293	22	1	2	341	1	6	4	8	0	10	28	1		
Hourly Total	60	1142	86	7	8	1303	1	31	18	59	0	38	146	3		
3:00PM	10	369	14	3	4	400	1	17	6	24	0	12	59	0		
3:15PM	30	409	17	2	14	472	0	19	10	18	0	4	51	0		
3:30PM	19	379	21	2	3	424	0	15	4	17	0	6	42	0		
3:45PM	23	405	30	2	7	467	0	5	4	17	0	10	36	0		
Hourly Total	82	1562	82	9	28	1763	1	56	24	76	0	32	188	0		
4:00PM	14	420	20	1	2	457	1	17	8	14	0	9	48	0		
4:15PM	26	384	17	3	2	432	0	17	5	23	0	10	55	0		
4:30PM	14	402	25	0	3	444	0	14	8	26	0	6	54	0		
4:45PM	16	396	22	2	2	438	0	6	4	20	0	6	36	1		
Hourly Total	70	1602	84	6	9	1771	1	54	25	83	0	31	193	1		
5:00PM	32	355	26	0	2	415	0	16	7	14	0	4	41	0		
5:15PM	10	384	26	0	5	425	0	6	6	24	0	8	44	0		
5:30PM	25	332	26	0	1	384	0	5	4	12	0	4	25	0		
5:45PM	19	343	23	0	4	389	0	12	11	8	0	2	33	0		
Hourly Total	86	1414	101	0	12	1613	0	39	28	58	0	18	143	0		
Total	588	10068	644	49	139	11488	8	423	259	495	0	299	1476	6		
% Approach	5.1%	87.6%	5.6%	0.4%	1.2%	-	-	28.7%	17.5%	33.5%	0%	20.3%	-	-		
% Total	2.3%	40.0%	2.6%	0.2%	0.6%	45.6%	-	1.7%	1.0%	2.0%	0%	1.2%	5.9%	-		
Lights	572	9750	632	47	134	11135	-	412	254	473	0	295	1434	-		
% Lights	97.3%	96.8%	98.1%	95.9%	96.4%	96.9%	-	97.4%	98.1%	95.6%	0%	98.7%	97.2%	-		
Articulated Trucks	1	131	3	1	2	138	-	4	0	8	0	1	13	-		
% Articulated Trucks	0.2%	1.3%	0.5%	2.0%	1.4%	1.2%	-	0.9%	0%	1.6%	0%	0.3%	0.9%	-		

Leg Direction	Coors Blvd Southbound							Fortuna Westbound						
Time	R	T	L	U	RR	App	Ped*	R	T	L	U	RR	App	Ped*
Buses and Single-Unit Trucks	15	186	9	1	3	214	-	7	5	13	0	3	28	-
% Buses and Single-Unit Trucks	2.6%	1.8%	1.4%	2.0%	2.2%	1.9%	-	1.7%	1.9%	2.6%	0%	1.0%	1.9%	-
Bicycles on Road	0	1	0	0	0	1	-	0	0	1	0	0	1	-
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-	0%	0%	0.2%	0%	0%	0.1%	-
Pedestrians	-	-	-	-	-	-	7	-	-	-	-	-	-	4
% Pedestrians	-	-	-	-	-	-	87.5%	-	-	-	-	-	-	66.7%
Bicycles on Crosswalk	-	-	-	-	-	-	1	-	-	-	-	-	-	2
% Bicycles on Crosswalk	-	-	-	-	-	-	12.5%	-	-	-	-	-	-	33.3%

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

Full Length (6 AM-9 AM, 11 AM-2 PM, 3 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

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Leg Direction	Coors Blvd Northbound							Fortuna Eastbound							
Time	R	T	L	U	RR	App	Ped*	R	T	L	U	RR	App	Ped*	Int
2019-11-19 6:00AM	0	130	4	1	0	135	0	0	0	8	0	0	8	0	229
6:15AM	1	199	8	0	0	208	0	3	1	14	0	1	19	0	382
6:30AM	4	252	14	0	1	271	0	5	4	23	0	3	35	0	486
6:45AM	4	331	28	0	0	363	0	4	8	37	0	7	56	0	714
Hourly Total	9	912	54	1	1	977	0	12	13	82	0	11	118	0	1811
7:00AM	5	240	62	1	0	308	0	38	23	60	1	1	123	1	743
7:15AM	12	340	60	1	1	414	0	55	41	56	0	4	156	0	925
7:30AM	9	317	13	0	0	339	0	7	14	23	0	1	45	0	691
7:45AM	11	366	11	0	0	388	0	5	10	16	0	4	35	0	760
Hourly Total	37	1263	146	2	1	1449	0	105	88	155	1	10	359	1	3119
8:00AM	11	280	20	1	1	313	0	2	5	18	0	5	30	1	676
8:15AM	6	321	11	0	0	338	0	10	4	26	0	6	46	0	678
8:30AM	1	277	9	0	1	288	0	4	2	15	0	2	23	0	613
8:45AM	9	300	10	0	0	319	1	1	2	14	0	2	19	2	589
Hourly Total	27	1178	50	1	2	1258	1	17	13	73	0	15	118	3	2556
11:00AM	4	224	7	0	0	235	0	6	2	10	0	3	21	0	542
11:15AM	4	231	13	1	0	249	1	6	2	12	0	3	23	0	609
11:30AM	3	243	13	1	0	260	0	13	1	19	0	2	35	0	588
11:45AM	5	310	14	0	0	329	0	12	2	8	0	3	25	0	693
Hourly Total	16	1008	47	2	0	1073	1	37	7	49	0	11	104	0	2432
12:00PM	5	255	8	0	1	269	0	8	7	15	0	6	36	0	640
12:15PM	5	249	7	2	1	264	0	4	5	21	0	7	37	1	627
12:30PM	8	235	15	0	1	259	0	6	4	13	0	9	32	0	670
12:45PM	10	272	12	1	0	295	1	6	2	13	0	2	23	0	660
Hourly Total	28	1011	42	3	3	1087	1	24	18	62	0	24	128	1	2597
1:00PM	7	228	12	1	1	249	0	1	1	8	0	6	16	0	597
1:15PM	14	253	14	1	1	283	0	1	4	24	0	6	35	0	678
1:30PM	6	254	7	1	0	268	0	9	8	20	1	5	43	2	699
1:45PM	15	232	10	0	0	257	0	3	8	15	1	2	29	0	655
Hourly Total	42	967	43	3	2	1057	0	14	21	67	2	19	123	2	2629
3:00PM	10	308	12	0	1	331	0	9	7	21	0	6	43	0	833
3:15PM	5	322	7	0	1	335	0	12	7	22	0	11	52	0	910
3:30PM	9	310	12	1	1	333	0	14	5	44	0	1	64	0	863
3:45PM	7	272	15	1	0	295	1	13	4	21	0	4	42	1	840
Hourly Total	31	1212	46	2	3	1294	1	48	23	108	0	22	201	1	3446
4:00PM	10	305	17	1	3	336	0	10	5	12	0	2	29	1	870
4:15PM	10	253	7	0	0	270	0	5	5	11	0	8	29	0	786
4:30PM	6	331	10	0	1	348	0	8	10	26	0	5	49	0	895
4:45PM	5	300	17	0	3	325	0	13	6	41	0	4	64	0	863
Hourly Total	31	1189	51	1	7	1279	0	36	26	90	0	19	171	1	3414
5:00PM	8	333	13	0	0	354	0	8	8	18	0	3	37	0	847
5:15PM	7	331	6	0	1	345	0	19	2	26	0	3	50	0	864
5:30PM	8	290	8	0	1	307	0	1	2	17	0	2	22	0	738
5:45PM	9	260	11	0	1	281	0	9	3	16	0	1	29	0	732
Hourly Total	32	1214	38	0	3	1287	0	37	15	77	0	9	138	0	3181
Total	253	9954	517	15	22	10761	4	330	224	763	3	140	1460	9	25185
% Approach	2.4%	92.5%	4.8%	0.1%	0.2%	-	-	22.6%	15.3%	52.3%	0.2%	9.6%	-	-	-
% Total	1.0%	39.5%	2.1%	0.1%	0.1%	42.7%	-	1.3%	0.9%	3.0%	0%	0.6%	5.8%	-	-
Lights	239	9609	509	15	22	10394	-	326	223	745	3	140	1437	-	24400
% Lights	94.5%	96.5%	98.5%	100%	100%	96.6%	-	98.8%	99.6%	97.6%	100%	100%	98.4%	-	96.9%
Articulated Trucks	6	112	0	0	0	118	-	1	0	4	0	0	5	-	274
% Articulated Trucks	2.4%	1.1%	0%	0%	0%	1.1%	-	0.3%	0%	0.5%	0%	0%	0.3%	-	1.1%

Leg Direction	Coors Blvd Northbound							Fortuna Eastbound							
Time	R	T	L	U	RR	App	Ped*	R	T	L	U	RR	App	Ped*	Int
Buses and Single-Unit Trucks	8	232	8	0	0	248	-	3	1	14	0	0	18	-	508
% Buses and Single-Unit Trucks	3.2%	2.3%	1.5%	0%	0%	2.3%	-	0.9%	0.4%	1.8%	0%	0%	1.2%	-	2.0%
Bicycles on Road	0	1	0	0	0	1	-	0	0	0	0	0	0	-	3
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	-	3	-	-	-	-	-	-	6	
% Pedestrians	-	-	-	-	-	-	75.0%	-	-	-	-	-	-	66.7%	-
Bicycles on Crosswalk	-	-	-	-	-	-	1	-	-	-	-	-	-	3	
% Bicycles on Crosswalk	-	-	-	-	-	-	25.0%	-	-	-	-	-	-	33.3%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

Full Length (6 AM-9 AM, 11 AM-2 PM, 3 PM-6 PM)

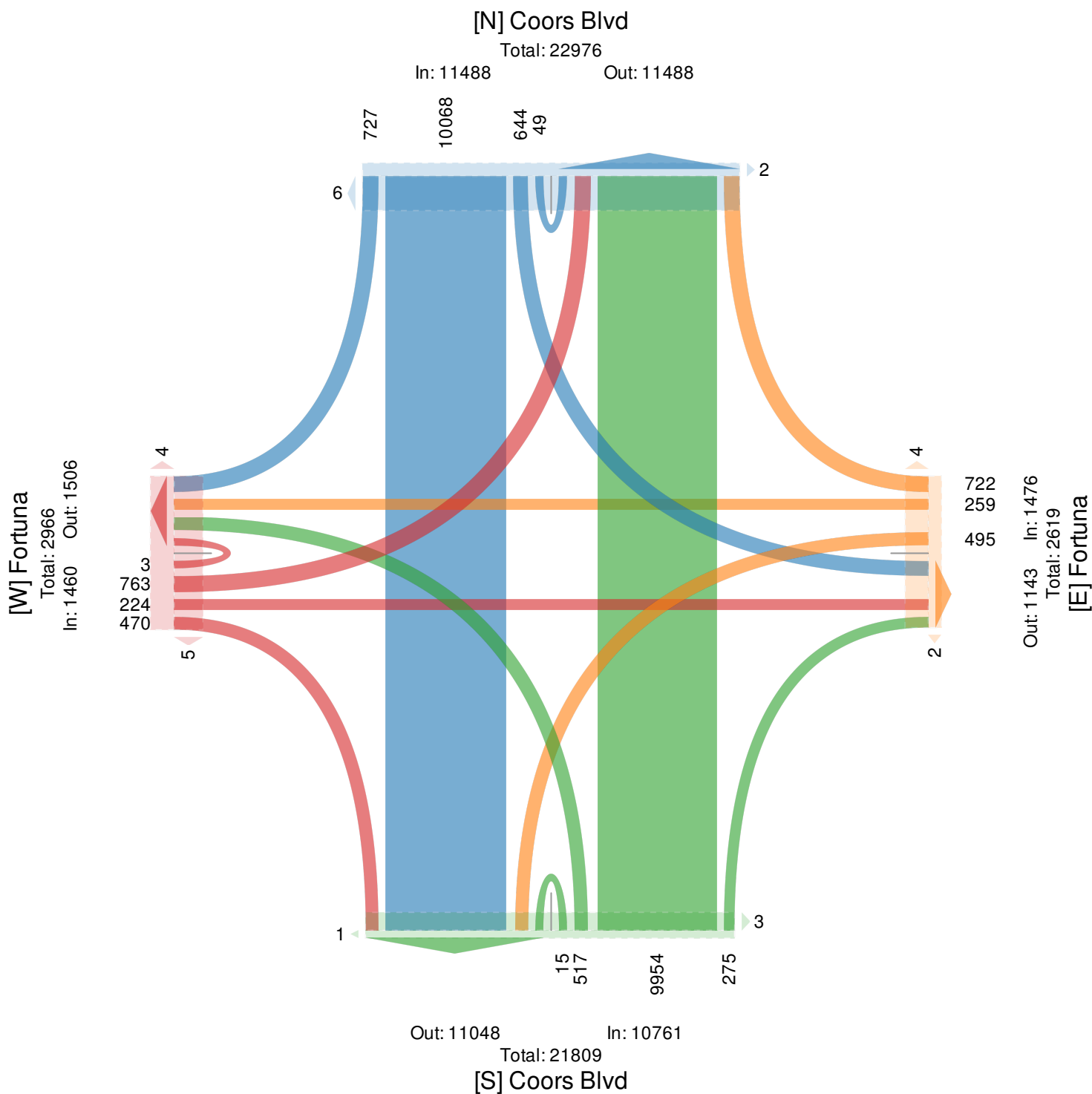
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



LEE ENGINEERING

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Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US



NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
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Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US

Leg Direction	Coors Blvd Southbound								Fortuna Westbound							
Time	R	T	L	U	RR	App	Ped*		R	T	L	U	RR	App	Ped*	
2019-11-19 7:00AM	34	176	16	1	22	249	0		9	41	8	0	5	63	0	
7:15AM	27	200	25	1	17	270	1		21	50	7	0	7	85	0	
7:30AM	13	203	22	1	1	240	0		34	9	16	0	8	67	0	
7:45AM	16	226	20	0	4	266	2		35	16	18	0	2	71	0	
Total	90	805	83	3	44	1025	3		99	116	49	0	22	286	0	
% Approach	8.8%	78.5%	8.1%	0.3%	4.3%	-	-		34.6%	40.6%	17.1%	0%	7.7%	-	-	
% Total	2.9%	25.8%	2.7%	0.1%	1.4%	32.9%	-		3.2%	3.7%	1.6%	0%	0.7%	9.2%	-	
PHF	0.662	0.890	0.830	0.750	0.500	0.949	-		0.707	0.580	0.681	-	0.688	0.841	-	
Lights	87	786	82	3	44	1002	-		95	114	49	0	22	280	-	
% Lights	96.7%	97.6%	98.8%	100%	100%	97.8%	-		96.0%	98.3%	100%	0%	100%	97.9%	-	
Articulated Trucks	0	2	0	0	0	2	-		1	0	0	0	0	1	-	
% Articulated Trucks	0%	0.2%	0%	0%	0%	0.2%	-		1.0%	0%	0%	0%	0%	0.3%	-	
Buses and Single-Unit Trucks	3	17	1	0	0	21	-		3	2	0	0	0	5	-	
% Buses and Single-Unit Trucks	3.3%	2.1%	1.2%	0%	0%	2.0%	-		3.0%	1.7%	0%	0%	0%	1.7%	-	
Bicycles on Road	0	0	0	0	0	0	-		0	0	0	0	0	0	-	
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-	
Pedestrians	-	-	-	-	-	-	3		-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	100%		-	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%		-	-	-	-	-	-	-	

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US

Leg Direction	Coors Blvd Northbound								Fortuna Eastbound								
Time	R	T	L	U	RR	App	Ped*		R	T	L	U	RR	App	Ped*		Int
2019-11-19 7:00AM	5	240	62	1	0	308	0		38	23	60	1	1	123	1		743
7:15AM	12	340	60	1	1	414	0		55	41	56	0	4	156	0		925
7:30AM	9	317	13	0	0	339	0		7	14	23	0	1	45	0		691
7:45AM	11	366	11	0	0	388	0		5	10	16	0	4	35	0		760
Total	37	1263	146	2	1	1449	0		105	88	155	1	10	359	1		3119
% Approach	2.6%	87.2%	10.1%	0.1%	0.1%	-	-		29.2%	24.5%	43.2%	0.3%	2.8%	-	-		-
% Total	1.2%	40.5%	4.7%	0.1%	0%	46.5%	-		3.4%	2.8%	5.0%	0%	0.3%	11.5%	-		-
PHF	0.771	0.863	0.589	0.500	0.250	0.875	-		0.477	0.537	0.646	0.250	0.625	0.575	-		0.843
Lights	36	1197	143	2	1	1379	-		102	88	150	1	10	351	-		3012
% Lights	97.3%	94.8%	97.9%	100%	100%	95.2%	-		97.1%	100%	96.8%	100%	100%	97.8%	-		96.6%
Articulated Trucks	0	16	0	0	0	16	-		1	0	0	0	0	1	-		20
% Articulated Trucks	0%	1.3%	0%	0%	0%	1.1%	-		1.0%	0%	0%	0%	0%	0.3%	-		0.6%
Buses and Single-Unit Trucks	1	50	3	0	0	54	-		2	0	5	0	0	7	-		87
% Buses and Single-Unit Trucks	2.7%	4.0%	2.1%	0%	0%	3.7%	-		1.9%	0%	3.2%	0%	0%	1.9%	-		2.8%
Bicycles on Road	0	0	0	0	0	0	-		0	0	0	0	0	0	-		0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-		0%
Pedestrians	-	-	-	-	-	-	0		-	-	-	-	-	-	1		
% Pedestrians	-	-	-	-	-	-	-		-	-	-	-	-	-	100%		-
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-		-	-	-	-	-	-	0%		-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

AM Peak (7 AM - 8 AM)

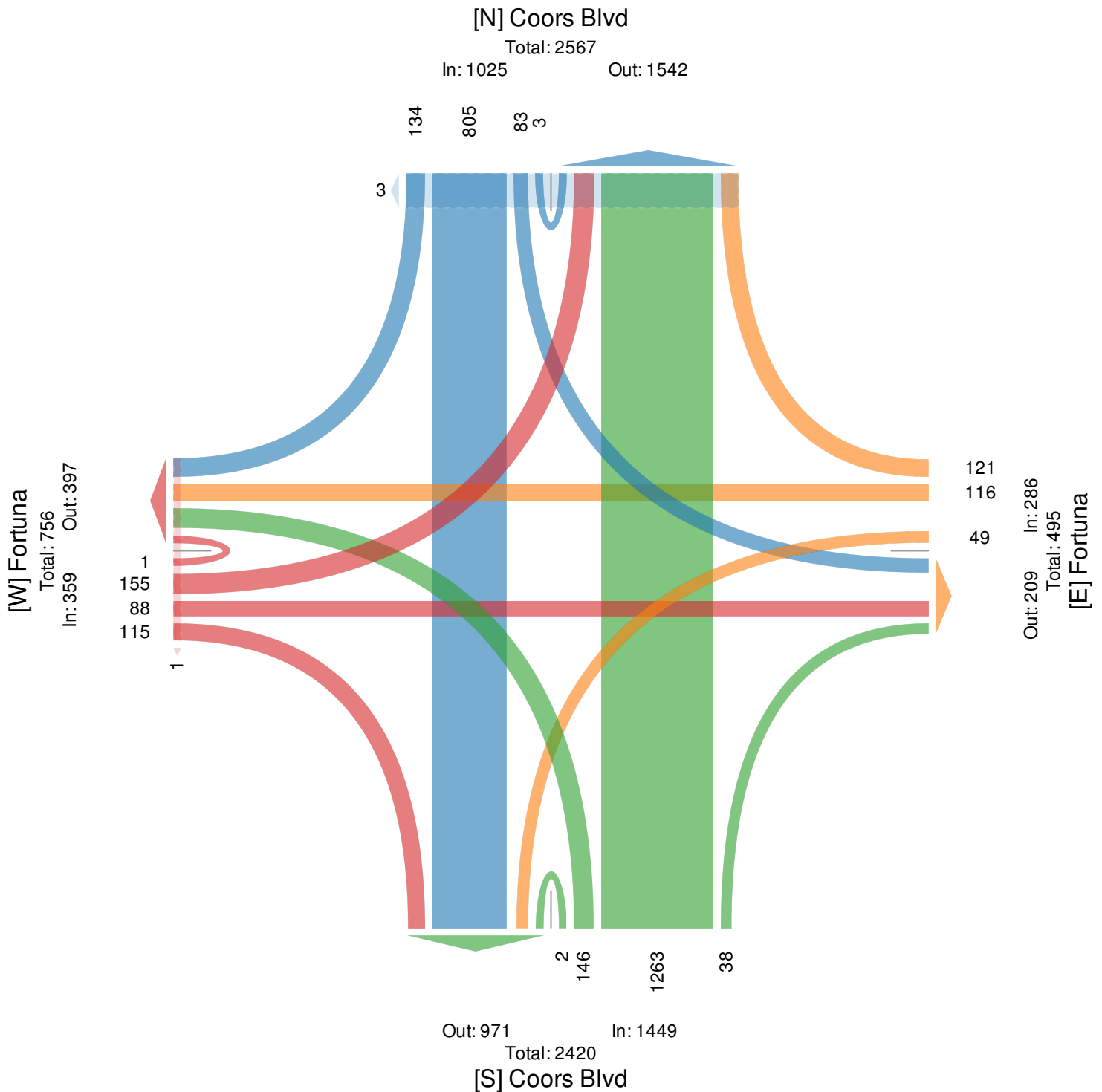
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



LEE ENGINEERING

Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US



NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US

Leg Direction	Coors Blvd Southbound								Fortuna Westbound							
Time	R	T	L	U	RR	App	Ped*		R	T	L	U	RR	App	Ped*	
2019-11-19 11:45AM	15	275	15	1	3	309	0		4	3	14	0	9	30	1	
12:00PM	18	252	25	2	1	298	0		6	3	17	0	11	37	0	
12:15PM	11	260	13	3	1	288	0		11	0	14	0	13	38	0	
12:30PM	18	307	20	3	1	349	0		9	4	10	0	7	30	0	
Total	62	1094	73	9	6	1244	0		30	10	55	0	40	135	1	
% Approach	5.0%	87.9%	5.9%	0.7%	0.5%	-	-		22.2%	7.4%	40.7%	0%	29.6%	-	-	
% Total	2.4%	41.6%	2.8%	0.3%	0.2%	47.3%	-		1.1%	0.4%	2.1%	0%	1.5%	5.1%	-	
PHF	0.861	0.891	0.730	0.750	0.500	0.891	-		0.682	0.625	0.809	-	0.769	0.888	-	
Lights	62	1057	71	9	5	1204	-		30	10	51	0	40	131	-	
% Lights	100%	96.6%	97.3%	100%	83.3%	96.8%	-		100%	100%	92.7%	0%	100%	97.0%	-	
Articulated Trucks	0	17	1	0	1	19	-		0	0	3	0	0	3	-	
% Articulated Trucks	0%	1.6%	1.4%	0%	16.7%	1.5%	-		0%	0%	5.5%	0%	0%	2.2%	-	
Buses and Single-Unit Trucks	0	20	1	0	0	21	-		0	0	1	0	0	1	-	
% Buses and Single-Unit Trucks	0%	1.8%	1.4%	0%	0%	1.7%	-		0%	0%	1.8%	0%	0%	0.7%	-	
Bicycles on Road	0	0	0	0	0	0	-		0	0	0	0	0	0	-	
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-	
Pedestrians	-	-	-	-	-	-	0		-	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-		-	-	-	-	-	-	100%	
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-		-	-	-	-	-	-	0%	

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US

Leg Direction	Coors Blvd Northbound								Fortuna Eastbound								
Time	R	T	L	U	RR	App	Ped*		R	T	L	U	RR	App	Ped*		Int
2019-11-19 11:45AM	5	310	14	0	0	329	0		12	2	8	0	3	25	0		693
12:00PM	5	255	8	0	1	269	0		8	7	15	0	6	36	0		640
12:15PM	5	249	7	2	1	264	0		4	5	21	0	7	37	1		627
12:30PM	8	235	15	0	1	259	0		6	4	13	0	9	32	0		670
Total	23	1049	44	2	3	1121	0		30	18	57	0	25	130	1		2630
% Approach	2.1%	93.6%	3.9%	0.2%	0.3%	-	-		23.1%	13.8%	43.8%	0%	19.2%	-	-		-
% Total	0.9%	39.9%	1.7%	0.1%	0.1%	42.6%	-		1.1%	0.7%	2.2%	0%	1.0%	4.9%	-		-
PHF	0.719	0.846	0.733	0.250	0.750	0.852	-		0.625	0.643	0.679	-	0.694	0.878	-		0.949
Lights	21	1007	44	2	3	1077	-		30	18	52	0	25	125	-		2537
% Lights	91.3%	96.0%	100%	100%	100%	96.1%	-		100%	100%	91.2%	0%	100%	96.2%	-		96.5%
Articulated Trucks	1	14	0	0	0	15	-		0	0	3	0	0	3	-		40
% Articulated Trucks	4.3%	1.3%	0%	0%	0%	1.3%	-		0%	0%	5.3%	0%	0%	2.3%	-		1.5%
Buses and Single-Unit Trucks	1	28	0	0	0	29	-		0	0	2	0	0	2	-		53
% Buses and Single-Unit Trucks	4.3%	2.7%	0%	0%	0%	2.6%	-		0%	0%	3.5%	0%	0%	1.5%	-		2.0%
Bicycles on Road	0	0	0	0	0	0	-		0	0	0	0	0	0	-		0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	0%	0%	0%	0%	-		0%
Pedestrians	-	-	-	-	-	-	0		-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-		-	-	-	-	-	-	0%		-
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	1		
% Bicycles on Crosswalk	-	-	-	-	-	-	-		-	-	-	-	-	-	100%		-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

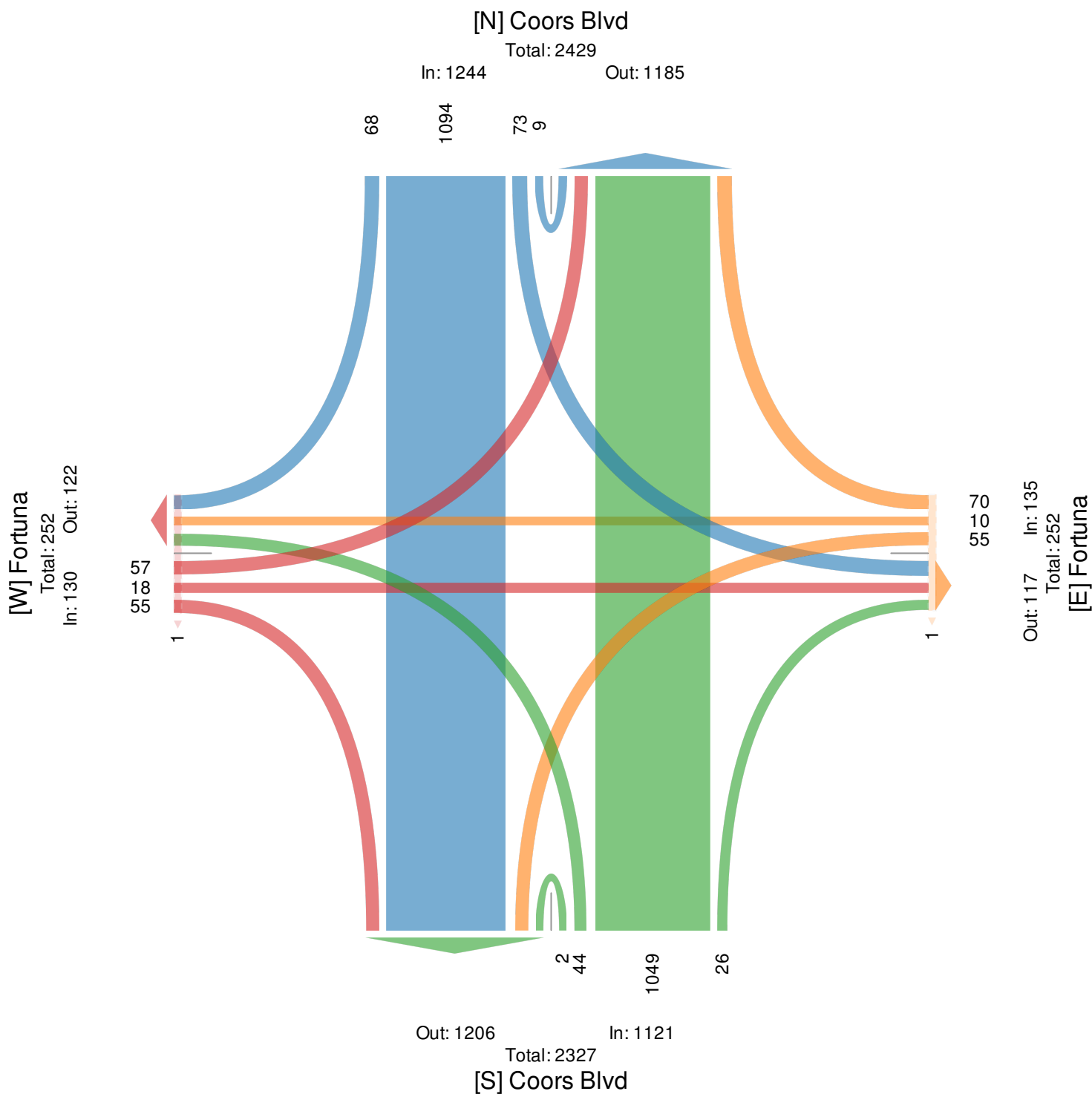
All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



LEE ENGINEERING

Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US



NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US

Leg Direction	Coors Blvd Southbound								Fortuna Westbound							
Time	R	T	L	U	RR	App	Ped*		R	T	L	U	RR	App	Ped*	
2019-11-19 3:15PM	30	409	17	2	14	472	0		19	10	18	0	4	51	0	
3:30PM	19	379	21	2	3	424	0		15	4	17	0	6	42	0	
3:45PM	23	405	30	2	7	467	0		5	4	17	0	10	36	0	
4:00PM	14	420	20	1	2	457	1		17	8	14	0	9	48	0	
Total	86	1613	88	7	26	1820	1		56	26	66	0	29	177	0	
% Approach	4.7%	88.6%	4.8%	0.4%	1.4%	-	-		31.6%	14.7%	37.3%	0%	16.4%	-	-	
% Total	2.5%	46.3%	2.5%	0.2%	0.7%	52.3%	-		1.6%	0.7%	1.9%	0%	0.8%	5.1%	-	
PHF	0.717	0.960	0.733	0.875	0.464	0.964	-		0.737	0.650	0.903	-	0.725	0.863	-	
Lights	84	1563	88	7	25	1767	-		55	26	64	0	27	172	-	
% Lights	97.7%	96.9%	100%	100%	96.2%	97.1%	-		98.2%	100%	97.0%	0%	93.1%	97.2%	-	
Articulated Trucks	0	26	0	0	0	26	-		0	0	0	0	0	0	-	
% Articulated Trucks	0%	1.6%	0%	0%	0%	1.4%	-		0%	0%	0%	0%	0%	0%	-	
Buses and Single-Unit Trucks	2	24	0	0	1	27	-		1	0	1	0	2	4	-	
% Buses and Single-Unit Trucks	2.3%	1.5%	0%	0%	3.8%	1.5%	-		1.8%	0%	1.5%	0%	6.9%	2.3%	-	
Bicycles on Road	0	0	0	0	0	0	-		0	0	1	0	0	1	-	
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-		0%	0%	1.5%	0%	0%	0.6%	-	
Pedestrians	-	-	-	-	-	-	1		-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	100%		-	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%		-	-	-	-	-	-	-	

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
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Leg Direction	Coors Blvd Northbound								Fortuna Eastbound								
Time	R	T	L	U	RR	App	Ped*		R	T	L	U	RR	App	Ped*		Int
2019-11-19 3:15PM	5	322	7	0	1	335	0		12	7	22	0	11	52	0		910
3:30PM	9	310	12	1	1	333	0		14	5	44	0	1	64	0		863
3:45PM	7	272	15	1	0	295	1		13	4	21	0	4	42	1		840
4:00PM	10	305	17	1	3	336	0		10	5	12	0	2	29	1		870
Total	31	1209	51	3	5	1299	1		49	21	99	0	18	187	2		3483
% Approach	2.4%	93.1%	3.9%	0.2%	0.4%	-	-		26.2%	11.2%	52.9%	0%	9.6%	-	-		-
% Total	0.9%	34.7%	1.5%	0.1%	0.1%	37.3%	-		1.4%	0.6%	2.8%	0%	0.5%	5.4%	-		-
PHF	0.775	0.938	0.750	0.750	0.417	0.966	-		0.875	0.750	0.563	-	0.409	0.730	-		0.956
Lights	30	1181	50	3	5	1269	-		48	20	97	0	18	183	-		3391
% Lights	96.8%	97.7%	98.0%	100%	100%	97.7%	-		98.0%	95.2%	98.0%	0%	100%	97.9%	-		97.4%
Articulated Trucks	0	12	0	0	0	12	-		0	0	0	0	0	0	-		38
% Articulated Trucks	0%	1.0%	0%	0%	0%	0.9%	-		0%	0%	0%	0%	0%	0%	-		1.1%
Buses and Single-Unit Trucks	1	15	1	0	0	17	-		1	1	2	0	0	4	-		52
% Buses and Single-Unit Trucks	3.2%	1.2%	2.0%	0%	0%	1.3%	-		2.0%	4.8%	2.0%	0%	0%	2.1%	-		1.5%
Bicycles on Road	0	1	0	0	0	1	-		0	0	0	0	0	0	-		2
% Bicycles on Road	0%	0.1%	0%	0%	0%	0.1%	-		0%	0%	0%	0%	0%	0%	-		0.1%
Pedestrians	-	-	-	-	-	-	1		-	-	-	-	-	-	1		
% Pedestrians	-	-	-	-	-	-	100%		-	-	-	-	-	-	50.0%		-
Bicycles on Crosswalk	-	-	-	-	-	-	0		-	-	-	-	-	-	1		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%		-	-	-	-	-	-	50.0%		-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

NM 282.01 Fortuna Coffee Shop - TMC

Tue Nov 19, 2019

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

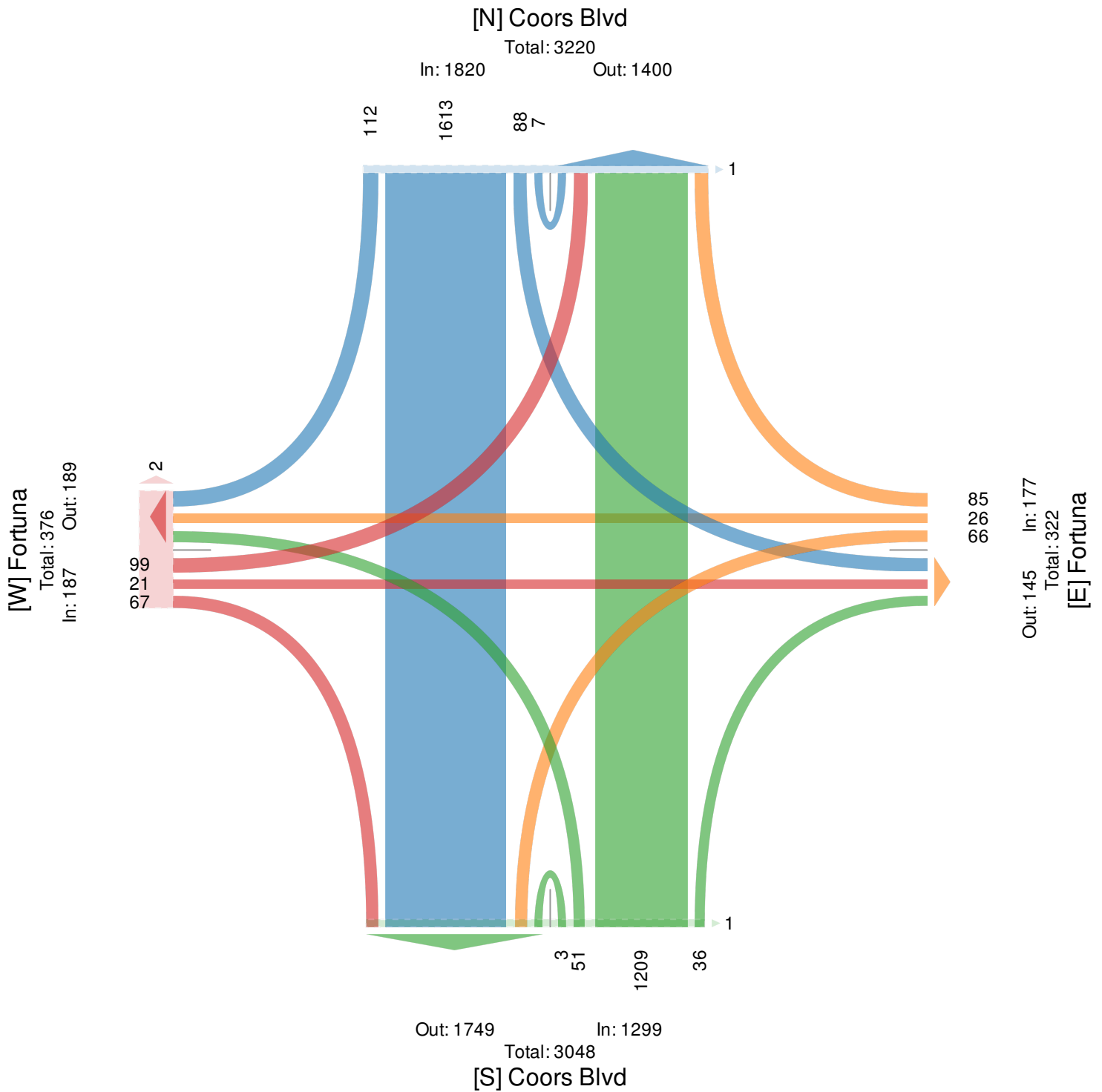
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
All Movements

ID: 728814, Location: 35.094438, -106.709583, Site Code: Coors & Fortuna



LEE ENGINEERING

Provided by: Lee Engineering, LLC
Phoenix, Arizona - Dallas, Texas, Oklahoma City,
Oklahoma - San Antonio, Texas, Albuquerque, NM, US



Bus stoping time		
Sample	Stopping time	Average
Bus #1	11 seconds	13.7 seconds
Bus #2	20 seconds	
Bus #3	10 seconds	

Lane Utilization Sample, Coors Blvd & Fortuna Rd SW

Northbound					Total
Sample Period	Through Lane 1	Through Lane 2	Through Lane 3/Right		
			Through	Right	
AM (7:00 -7:20)	107	131	128	11	377
PM (3:15 -3:35)	131	126	148	8	413
Proportion	30%	33%	35%		

Southbound				Total
Sample Period	Through Lane 1	Through Lane 2	Through Lane 3	
AM (7:00 -7:20)	66	116	70	252
PM (3:15 -3:35)	171	214	132	517
Proportion	31%	43%	26%	

Proportion Arriving on Green							
Direction	Sample	AM peak hour			PM peak hour		
		Arrival on Green	Arrival on red	Proportion Arriving on Green	Arrival on Green	Arrival on red	Proportion Arriving on Green
Northbound	Cycle1	24	27	60%	17	15	73%
	Cycle2	36	12		55	8	
	Cycle3	18	25		27	19	
	Cycle4	44	17		26	4	
Southbound	Cycle1	29	11	72%	57	17	84%
	Cycle2	19	10		41	4	
	Cycle3	23	10		50	12	
	Cycle4	33	9		61	6	
Eastbound	Cycle1	5	9	32%	2	4	41%
	Cycle2	4	11		4	5	
	Cycle3	3	5		1	2	
	Cycle4	0	1		2	2	
Westbound	Cycle1	1	7	19%	3	8	18%
	Cycle2	0	5		3	12	
	Cycle3	3	13		1	5	
	Cycle4	3	5		0	6	

Saturated Flow Samples				
Cycle	Count of Cars (vehicles)	Time (seconds)	Headway (seconds)	Saturated Flow (vplph)
1	5	10	2.00	1800
2	8	16	2.00	1800
3	3	7	2.33	1543
4	8	14	1.75	2057
5	5	10	2.00	1800
6	4	8	2.00	1800
7	3	4	1.33	2700
8	5	11	2.20	1636
9	5	10	2.00	1800
10	2	3	1.50	2400
11	2	3	1.50	2400
12	6	10	1.67	2160
13	2	4	2.00	1800
14	2	3	1.50	2400
15	3	6	2.00	1800
			Average	1993

Appendix C: Signal Timing Sheets

ASC3 COORDINATION PLAN DATA

2/17/2020 9:30 AM

379 - Fortuna & Coors

COORDINATOR OPTIONS (MM 3-1)

MANUAL PATTERN	AUTO	ECPI COORD	YES
SYSTEM SOURCE	SYS	SYSTEM FORMAT	PTN
SPLITS IN	PERCENT	OFFSET IN	PERCENT
TRANSITION	SMOOTH	MAX SELECT	MAXINH
DWELL/ADD TIME	0	ENABLE MAN SYNC	NO
DLY COORD WK-LZ	NO	FORCE OFF	FLOAT
OFFSET REF	LEAD	CAL USE PED TM	NO
PED RECALL	NO	PED RESERVE	NO
LOCAL ZERO OVRD	NO	FO ADD INI GRN	NO
RE-SYNC COUNT	0	MULTISYNC	NO

COORDINATION PATTERN 1 (MM 3-2)

USE SPLIT PATTERN	1	SPLIT SUM	100%
TS2 (PAT-OFF)	0-1		
CYCLE	110s	STD (COS)	111
OFFSET VAL	93%		
ACTUATED COORD	YES	TIMING PLAN	0
ACT WALK REST	NO	SEQUENCE	0
PHASE RESRVCE	NO	ACTION PLAN	0

PHASE	1	2	3	4	5	6	7	8
DIRECTION	S-E	NB		EB	N-W	SB	E-N	WB
SPLITS	12	41		47	15	38	14	33

PHASE	1	2	3	4	5	6	7	8
COORD PHASE		X				X		
VEH RECALL								
MAX RECALL		X				X		

COORDINATION PATTERN 3

USE SPLIT PATTERN	3	SPLIT SUM	100%
TS2 (PAT-OFF)	0-3		
CYCLE	100s	STD (COS)	131
OFFSET VAL	83%		
ACTUATED COORD	YES	TIMING PLAN	0
ACT WALK REST	NO	SEQUENCE	0
PHASE RESRVCE	NO	ACTION PLAN	0

PHASE	1	2	3	4	5	6	7	8
DIRECTION	S-E	NB		EB	N-W	SB	E-N	WB
SPLITS	12	41		47	12	41	12	35

PHASE	1	2	3	4	5	6	7	8
COORD PHASE		X				X		
VEH RECALL								
MAX RECALL		X				X		

ASC3 COORDINATION PLAN DATA

2/17/2020 9:30 AM

COORDINATION PATTERN 5

USE SPLIT PATTERN	5	SPLIT SUM	100%
TS2 (PAT-OFF)	0-5		
CYCLE	110s	STD (COS)	151
OFFSET VAL	12%		
ACTUATED COORD	YES	TIMING PLAN	0
ACT WALK REST	NO	SEQUENCE	0
PHASE RESRVCE	NO	ACTION PLAN	0

PHASE	1	2	3	4	5	6	7	8
DIRECTION	S-E	NB		EB	N-W	SB	E-N	WB
SPLITS	15	43		42	12	46	12	30

PHASE	1	2	3	4	5	6	7	8
COORD PHASE		X				X		
VEH RECALL								
MAX RECALL		X				X		

COORDINATION PATTERN 21 (MM 3-2)

USE SPLIT PATTERN	21	SPLIT SUM	100%
TS2 (PAT-OFF)	0-1		
CYCLE	120s	STD (COS)	111
OFFSET VAL	90%		
ACTUATED COORD	YES	TIMING PLAN	0
ACT WALK REST	NO	SEQUENCE	0
PHASE RESRVCE	NO	ACTION PLAN	0

PHASE	1	2	3	4	5	6	7	8
DIRECTION	S-E	NB		EB	N-W	SB	E-N	WB
SPLITS	12	44		44	18	38	12	32

PHASE	1	2	3	4	5	6	7	8
COORD PHASE		X				X		
VEH RECALL								
MAX RECALL		X				X		

ASC3 COORDINATION PLAN DATA

2/17/2020 9:30 AM

COORDINATION PATTERN 23

USE SPLIT PATTERN	23	SPLIT SUM	100%
TS2 (PAT-OFF)	0-3		
CYCLE	110s	STD (COS)	131
OFFSET VAL	69%		
ACTUATED COORD	YES	TIMING PLAN	0
ACT WALK REST	NO	SEQUENCE	0
PHASE RESRVCE	NO	ACTION PLAN	0

PHASE	1	2	3	4	5	6	7	8
DIRECTION	S-E	NB		EB	N-W	SB	E-N	WB
SPLITS	12	41		47	12	41	12	35

PHASE	1	2	3	4	5	6	7	8
COORD PHASE		X				X		
VEH RECALL								
MAX RECALL		X				X		

COORDINATION PATTERN 25

USE SPLIT PATTERN	25	SPLIT SUM	100%
TS2 (PAT-OFF)	0-5		
CYCLE	130s	STD (COS)	151
OFFSET VAL	25%		
ACTUATED COORD	YES	TIMING PLAN	0
ACT WALK REST	NO	SEQUENCE	0
PHASE RESRVCE	NO	ACTION PLAN	0

PHASE	1	2	3	4	5	6	7	8
DIRECTION	S-E	NB		EB	N-W	SB	E-N	WB
SPLITS	15	43		42	12	46	12	30

PHASE	1	2	3	4	5	6	7	8
COORD PHASE		X				X		
VEH RECALL								
MAX RECALL		X				X		

ASC3 COORDINATION PLAN DATA

2/17/2020 9:30 AM

CLOCK / CALENDAR DATA (MM 5-1)

CURRENT DATE	CURRENT DOW		CURRENT TOD
ENA ACTION PLAN	0		
SYNC REF TIME	00:00	SYNC REF	REF TIME
TIME FROM GMT	+00	DAY LIGHT SAVE	NO
TIME RESET INPUT SET TIME		3:30:00	

ACTION PLAN 5 (MM 5-2)

PATTERN	5	SYS OVERRIDE	NO
TIMING PLAN	0	SEQUENCE	0
VEHICLE DETECTOR PLAN	0.00	DET LOG	NONE
FLASH	--	RED REST	NO
VEH DET DIAG PLN	0	PED DET DIAG PLN	0
DIMMING ENABLE	NO		

ACTION PLAN 21 (MM 5-2)

PATTERN	21	SYS OVERRIDE	NO
TIMING PLAN	0	SEQUENCE	0
VEHICLE DETECTOR PLAN	0.00	DET LOG	NONE
FLASH	--	RED REST	NO
VEH DET DIAG PLN	0	PED DET DIAG PLN	0
DIMMING ENABLE	NO		

ACTION PLAN 23

PATTERN	23	SYS OVERRIDE	NO
TIMING PLAN	0	SEQUENCE	0
VEHICLE DETECTOR PLAN	0.00	DET LOG	NONE
FLASH	--	RED REST	NO
VEH DET DIAG PLN	0	PED DET DIAG PLN	0
DIMMING ENABLE	NO		

ACTION PLAN 25

PATTERN	25	SYS OVERRIDE	NO
TIMING PLAN	0	SEQUENCE	0
VEHICLE DETECTOR PLAN	0.00	DET LOG	NONE
FLASH	--	RED REST	NO
VEH DET DIAG PLN	0	PED DET DIAG PLN	0
DIMMING ENABLE	NO		

ACTION PLAN 100

PATTERN	254	SYS OVERRIDE	NO
TIMING PLAN	0	SEQUENCE	0
VEHICLE DETECTOR PLAN	0.00	DET LOG	NONE
FLASH	--	RED REST	NO
VEH DET DIAG PLN	0	PED DET DIAG PLN	0
DIMMING ENABLE	NO		

ASC3 COORDINATION PLAN DATA

2/17/2020 9:30 AM

DAY PLAN/EVENT 1 (MM 5-3)

EVENT	ACTION PLAN	START TIME
1	23	10:00
2	100	18:00
3	0	00:00

DAY PLAN/EVENT 2

EVENT	ACTION PLAN	START TIME
1	21	6:30
2	23	9:00
3	25	15:00
4	23	18:30
5	100	22:00
6	0	00:00
7	0	00:00

DAY PLAN/EVENT 3

EVENT	ACTION PLAN	START TIME
1	23	9:00
2	100	22:00
3	0	00:00

SCHEDULE NUMBER 1 (MM 5-4)

[illegible]

ASC3 COORDINATION PLAN DATA

2/17/2020 9:30 AM

SCHEDULE NUMBER 2												
SCHEDULE NUMBER			2									
DAY PLAN NO			2									
SELECT ALL MONTHS			CLEAR ALL FIELDS									
			DOW					DOM				
MONTH	J	F	M	A	M	J	J	A	S	O	N	D
	X	X	X	X	X	X	X	X	X	X	X	X
DAY(DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
	.	X	X	X	X	X	.					
DAY(DOM)	1	2	3	4	5	6	7	8	9	10	11	
	X	X	X	X	X	X	X	X	X	X	X	
	12	13	14	15	16	17	18	19	20	21	22	
	X	X	X	X	X	X	X	X	X	X	X	
	23	24	25	26	27	28	29	30	31			
	X	X	X	X	X	X	X	X	X			

SCHEDULE NUMBER 3												
SCHEDULE NUMBER			3									
DAY PLAN NO			3									
SELECT ALL MONTHS			CLEAR ALL FIELDS									
			DOW					DOM				
MONTH	J	F	M	A	M	J	J	A	S	O	N	D
	X	X	X	X	X	X	X	X	X	X	X	X
DAY(DOW)	SUN	MON	TUE	WED	THU	FRI	SAT					
	.	.	.	.	.	.	X					
DAY(DOM)	1	2	3	4	5	6	7	8	9	10	11	
	X	X	X	X	X	X	X	X	X	X	X	
	12	13	14	15	16	17	18	19	20	21	22	
	X	X	X	X	X	X	X	X	X	X	X	
	23	24	25	26	27	28	29	30	31			
	X	X	X	X	X	X	X	X	X			

NOTES:

1. Coord sheet created 3-25-09, by BB.

Intersection No.: 379

CENTRAC
1

Intersection Name: FORTUNA - COORS

Revision Date 9/29/2016

Timing Data

Phase I.D.:	1	2	3	4	5	6	7	8
Phase Dir.:	S-E	NB		EB	N-W	SB	E-N	WB
Min Grn	3	16		8	3	16	3	8
Walk:	0	7		7	0	7	0	7
Ped Clr:	0	15		30	0	13	0	30
Veh Ext:	2.0	3.0		4.0	2.0	3.0	2.0	4.0
Veh Ext2:	2.0	3.0		4.0	2.0	3.0	2.0	4.0
Max 1:	16	40		32	20	40	16	32
Max 2:	16	40		32	20	40	16	32
Max 3:								
Yellow:	3.0	4.5		3.5	3.0	4.5	3.0	3.5
Red Clr	0.5	1.0		2.0	0.5	1.0	0.5	2.0

Recall Data

Locking Memory:							
Vehicle Recall:							
Ped Recall:							
Recall To Max:		X				X	

Flash Mode: ALL RED

Start Up Mode: ALL RED

Time: 8 SEC.

First Phases: 2

Start In: GREEN

Overlap Phases: NONE

Overlap	Par Ph	Grn	Yel	Red
A				
B				
C				
D				

NOTES:	1. Crouse-Hinds-400 changed out to a EPAC-300, S-E arrow added at that time, 5-11-88.
	2. Green MAX. for phase 1, phase 2, phase 4, phase 6 revised.
	3. MAX for N-W raised from 20 to 28 sec., 10-31-05.
	4. Yellow & red clearance times revised, 1-24-92.
	5. Yellow & red clearance times revised, 7-29-92.
	6. Phase assignment for phases 1,2,5,6 swapped for color code, 12-7-93.
	7. Phase 4 EB, Phase 6 WB and Phase 7 E-N new phasing applied, 10-25-02.
	8. Timing sheet updated, 6-27-05.
	9. Adjusted ped times and clearance intervals, 8/19/09.
	10. Clearance intervals updated to NMDOT standard by BB, 9/25/13.
	11. Timing sheet updated to current timing sheet, 9-29-16 RS.

Appendix D: Demand Volume Adjustment Spreadsheet

Coors & Fortuna TMC

		<u>Southbound Coors</u>				<u>Northbound Coors</u>		
		<u>R</u>	<u>T</u>	<u>L</u>		<u>R</u>	<u>T</u>	<u>L</u>
7:00 AM	Queued Vehicles	0	0	1		0	0	2
	TMC Count	34	176	16		5	240	62
	Residual Queue	0	0	0		0	0	7
	Demand Volume	34	176	15		5	240	67
7:15 AM	Queued Vehicles	0	0	0		0	0	7
	TMC Count	27	200	25		12	340	60
	Residual Queue	0	0	0		0	0	0
	Demand Volume	27	200	25		12	340	53
7:30 AM	Queue Vehicles	0	0	0		0	0	0
	TMC Count	13	203	22		9	317	13
	Residual Queue	0	0	0		0	0	0
	Demand Volume	13	203	22		9	317	13
7:45 AM	Queue Vehicles	0	0	0		0	0	0
	TMC Count	16	226	20		11	366	11
	Residual Queue	0	0	0		0	0	0
	Demand Volume	16	226	20		11	366	11
3:15 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	30	409	17		5	322	7
	Residual Queue	0	0	0		0	0	0
	Demand Volume	30	409	17		5	322	7
3:30 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	19	379	21		9	310	12
	Residual Queue	0	0	0		0	0	0
	Demand Volume	19	379	21		9	310	12
3:45 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	23	405	30		7	272	15
	Residual Queue	0	0	0		0	0	0
	Demand Volume	23	405	30		7	272	15
4:00 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	14	420	20		10	305	17
	Residual Queue	0	0	0		0	0	0
	Demand Volume	14	420	20		10	305	17

		<u>Eastbound Fortuna</u>				<u>Westbound Fortuna</u>		
		<u>R</u>	<u>T</u>	<u>L</u>		<u>R</u>	<u>T</u>	<u>L</u>
7:00 AM	Queued Vehicles	2	1	4		0	1	0
	TMC Count	38	23	60		9	41	8
	Residual Queue	0	0	6		0	3	0
	Demand Volume	36	22	62		9	43	8
7:15 AM	Queued Vehicles	0	0	6		0	3	0
	TMC Count	55	41	56		21	50	7
	Residual Queue	0	0	0		0	0	0
	Demand Volume	55	41	50		21	47	7
7:30 AM	Queue Vehicles	0	0	0		0	0	0
	TMC Count	7	14	23		34	9	16
	Residual Queue	0	0	0		0	0	0
	Demand Volume	7	14	23		34	9	16
7:45 AM	Queue Vehicles	0	0	0		0	0	0
	TMC Count	5	10	16		35	16	18
	Residual Queue	0	0	0		0	0	0
	Demand Volume	5	10	16		35	16	18
3:15 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	12	7	22		19	10	18
	Residual Queue	0	0	0		0	0	0
	Demand Volume	12	7	22		19	10	18
3:30 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	14	5	44		15	4	17
	Residual Queue	0	0	0		0	0	0
	Demand Volume	14	5	44		15	4	17
3:45 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	13	4	21		5	4	17
	Residual Queue	0	0	0		0	0	0
	Demand Volume	13	4	21		5	4	17
4:00 PM	Queued Vehicles	0	0	0		0	0	0
	TMC Count	10	5	12		17	8	14
	Residual Queue	0	0	0		0	0	0
	Demand Volume	10	5	12		17	8	14

Appendix E:
Level of Service and Capacity Output
Sheets

HCS7 Signalized Intersection Input Data

General Information						Intersection Information						
Agency				Duration, h		1.000						
Analyst		Analysis Date 1/28/2020		Area Type		Other						
Jurisdiction		Time Period		PHF		1.00						
Urban Street Fortuna Rd NW		Analysis Year 2020		Analysis Period		1> 7:00						
Intersection Coors Blvd		File Name		AM Peak Hour.xus								
Project Description												

Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				184	105	125	59	138	118	174	1499	44	99	955	107

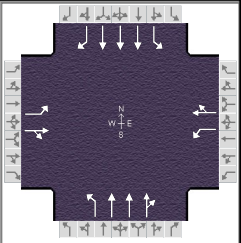
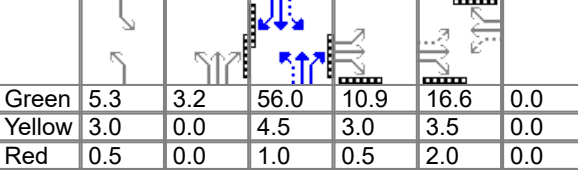
Signal Information														
Cycle, s	110.0	Reference Phase	2											
Offset, s	0	Reference Point	Begin	Green	5.3	3.2	56.0	10.9	16.6	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	0.0	4.5	3.0	3.5	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.5	0.0	1.0	0.5	2.0	0.0				

Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				184	105	125	59	138	118	174	1499	44	99	955	107
Initial Queue (Q_0), veh/h				0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h				1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
Parking (N_m), man/h					None			None			None			None	
Heavy Vehicles (P_{HV}), %				3	0		0	2		2	5		1	2	3
Ped / Bike / RTOR, /h				1	0	18	0	0	27	0	0	2	3	0	0
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft				12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft				196	0		100	0		226	0		170	0	180
Grade (P_g), %					0			0			0			0	
Speed Limit, mi/h				25	25	25	25	25	25	45	45	45	45	45	45

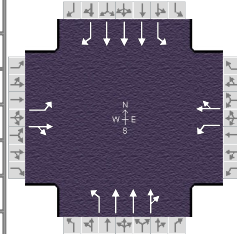
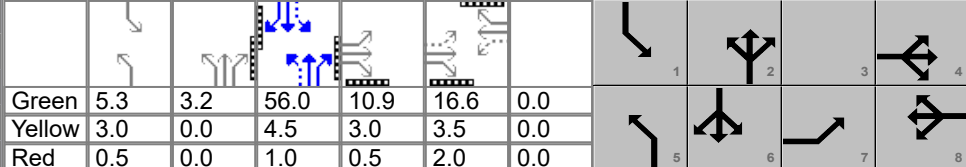
Phase Information		EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		15.4	51.7		36.3	16.5	45.1	13.2	41.8
Yellow Change Interval (Y), s		3.0	3.5		3.5	3.0	4.5	3.0	4.5
Red Clearance Interval (R_c), s		0.5	2.0		2.0	0.5	1.0	0.5	1.0
Minimum Green (G_{min}), s		3	8		8	3	16	3	16
Start-Up Lost Time (lt), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Ped	Off		Off	Off	Min	Off	Min
Dual Entry		No	Yes		Yes	No	Yes	No	Yes
Walk ($Walk$), s			7.0		7.0		7.0		7.0
Pedestrian Clearance Time (PC), s			30.0		30.0		15.0		13.0

Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft				9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb				0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft				12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking				No		0.50	No		0.50	No		0.50	No		0.50

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information															
Agency						Duration, h		1.000													
Analyst				Analysis Date		1/28/2020		Area Type		Other											
Jurisdiction				Time Period				PHF		1.00											
Urban Street		Fortuna Rd NW		Analysis Year		2020		Analysis Period		1> 7:00											
Intersection		Coors Blvd		File Name		AM Peak Hour.xus															
Project Description																					
Demand Information						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h						184	105	125	59	138	118	174	1499	44	99	955	107				
Signal Information																					
Cycle, s		110.0	Reference Phase		2																
Offset, s		0	Reference Point		Begin																
Uncoordinated		No	Simult. Gap E/W		On																
Force Mode		Fixed	Simult. Gap N/S		On																
						Green	5.3	3.2	56.0	10.9	16.6	0.0									
						Yellow	3.0	0.0	4.5	3.0	3.5	0.0									
						Red	0.5	0.0	1.0	0.5	2.0	0.0									
Timer Results						EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase						7		4				8		5		2		1		6	
Case Number						1.0		4.0				6.3		1.1		4.0		1.1		3.0	
Phase Duration, s						14.4		36.5				22.1		12.0		64.7		8.8		61.5	
Change Period, (Y+R c), s						3.5		5.5				5.5		3.5		5.5		3.5		5.5	
Max Allow Headway (MAH), s						3.2		3.3				3.3		3.0		0.0		3.0		0.0	
Queue Clearance Time (g s), s						10.9		12.0				15.3		8.3				5.5			
Green Extension Time (g e), s						0.0		1.1				1.0		0.3		0.0		0.1		0.0	
Phase Call Probability						1.00		1.00				1.00		1.00				0.95			
Max Out Probability						1.00		0.00				0.00		0.00				0.00			
Movement Group Results						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement						7	4	14	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h						184	212		59	229		174	1015	526	99	955	107				
Adjusted Saturation Flow Rate (s), veh/h/ln						1854	1826		1186	1831		1868	1823	1888	1883	1520	1645				
Queue Service Time (g s), s						8.9	10.0		4.7	13.3		6.3	17.8	17.8	3.5	9.2	2.2				
Cycle Queue Clearance Time (g c), s						8.9	10.0		4.7	13.3		6.3	17.8	17.8	3.5	9.2	2.2				
Green Ratio (g/C)						0.27	0.28		0.15	0.15		0.60	0.54	0.54	0.56	0.51	0.51				
Capacity (c), veh/h						284	515		245	277		460	1961	1016	278	2319	837				
Volume-to-Capacity Ratio (X)						0.649	0.412		0.241	0.827		0.378	0.518	0.518	0.356	0.412	0.128				
Back of Queue (Q), ft/ln (95 th percentile)						148	195		62.4	258.3		32	273.7	279.2	14.3	112.9	36.7				
Back of Queue (Q), veh/ln (95 th percentile)						5.8	7.8		2.5	10.2		1.3	10.5	11.2	0.6	4.4	1.4				
Queue Storage Ratio (RQ) (95 th percentile)						0.76	0.00		0.62	0.00		0.14	0.00	0.00	0.08	0.00	0.20				
Uniform Delay (d 1), s/veh						25.6	30.3		39.7	44.0		4.6	13.7	13.7	3.8	8.8	7.9				
Incremental Delay (d 2), s/veh						3.3	0.2		0.2	2.5		0.2	1.0	1.9	0.3	0.5	0.3				
Initial Queue Delay (d 3), s/veh						0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0				
Control Delay (d), s/veh						28.9	30.5		39.9	46.5		4.8	14.7	15.6	4.1	9.4	8.2				
Level of Service (LOS)						C	C		D	D		A	B	B	A	A	A				
Approach Delay, s/veh / LOS						29.7		C		45.1		D		14.0		B		8.8		A	
Intersection Delay, s/veh / LOS						16.6						B									
Multimodal Results						EB			WB			NB			SB						
Pedestrian LOS Score / LOS						2.59		C		2.73		C		1.93		B		1.93		B	
Bicycle LOS Score / LOS						1.14		A		0.96		A		1.43		A		1.13		A	

HCS7 Signalized Intersection Intermediate Values

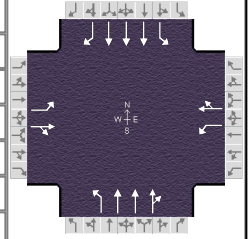
General Information						Intersection Information									
Agency						Duration, h		1.000							
Analyst				Analysis Date		1/28/2020		Area Type		Other					
Jurisdiction				Time Period				PHF		1.00					
Urban Street		Fortuna Rd NW		Analysis Year		2020		Analysis Period		1> 7:00					
Intersection		Coors Blvd		File Name		AM Peak Hour.xus									
Project Description															
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				184	105	125	59	138	118	174	1499	44	99	955	107
Signal Information															
Cycle, s	110.0	Reference Phase	2												
Offset, s	0	Reference Point	Begin												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
				Green	5.3	3.2	56.0	10.9	16.6	0.0					
				Yellow	3.0	0.0	4.5	3.0	3.5	0.0					
				Red	0.5	0.0	1.0	0.5	2.0	0.0					
Saturation Flow / Delay				L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f _w)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f _{HVg})				0.977	1.000	1.000	1.000	0.984	1.000	0.984	0.961	1.000	0.992	0.984	0.977
Parking Activity Adjustment Factor (f _p)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f _{bb})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f _a)				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f _{LU})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	0.775	1.000
Left-Turn Adjustment Factor (f _{LT})				0.952	0.000		0.596	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f _{RT})					0.916	0.916		0.933	0.933		0.986	0.986		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f _{LPB})				1.000			0.999			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f _{RPB})						0.999			1.000			1.000			0.997
Work Zone Adjustment Factor (f _{wz})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f _{DDI})				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h				1854	904	922	1186	1103	728	1868	5383	151	1883	4559	1645
Proportion of Vehicles Arriving on Green (P)				0.32	0.32	0.32	0.19	0.19	0.15	0.60	0.60	0.60	0.72	0.72	0.72
Incremental Delay Factor (k)				0.14	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50
Signal Timing / Movement Groups				EBL	EBT/R		WBL	WBT/R		NBL	NBT/R		SBL	SBT/R	
Lost Time (t _L)				3.5	5.5			5.5		3.5	5.5		3.5	5.5	
Green Ratio (g/C)				0.27	0.28			0.15		0.60	0.54		0.56	0.51	
Permitted Saturation Flow Rate (s _p), veh/h/ln				1142	0			1186		588	0		339	0	
Shared Saturation Flow Rate (s _{sh}), veh/h/ln															
Permitted Effective Green Time (g _p), s				18.6	0.0			16.6		57.7	0.0		56.0	0.0	
Permitted Service Time (g _u), s				3.4	0.0			16.6		46.8	0.0		39.4	0.0	
Permitted Queue Service Time (g _{ps}), s				2.1				4.7		1.6			1.6		
Time to First Blockage (g _r), s				0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Queue Service Time Before Blockage (g _{ts}), s															
Protected Right Saturation Flow (s _R), veh/h/ln														0	
Protected Right Effective Green Time (g _R), s														0.0	
Multimodal				EB			WB			NB			SB		
Pedestrian F _w / F _v				1.852	0.003		1.983	0.000		1.198	0.038		1.198	0.026	
Pedestrian F _s / F _{delay}				0.000	0.134		0.000	0.148		0.000	0.099		0.000	0.104	
Pedestrian M _{corner} / M _{cw}															
Bicycle c _b / d _b				563.77	28.36		302.31	39.63		1075.87	11.74		1017.42	13.28	
Bicvcle F _w / F _v				-3.64	0.65		-3.64	0.48		-3.64	0.94		-3.64	0.64	

HCS7 Signalized Intersection Results Graphical Summary

General Information

Agency		Analysis Date	1/28/2020	Duration, h	1.000
Analyst		Area Type	Other	PHF	1.00
Jurisdiction		Analysis Year	2020	Analysis Period	1> 7:00
Urban Street	Fortuna Rd NW	File Name	AM Peak Hour.xus		
Intersection	Coors Blvd				
Project Description					

Intersection Information



Demand Information

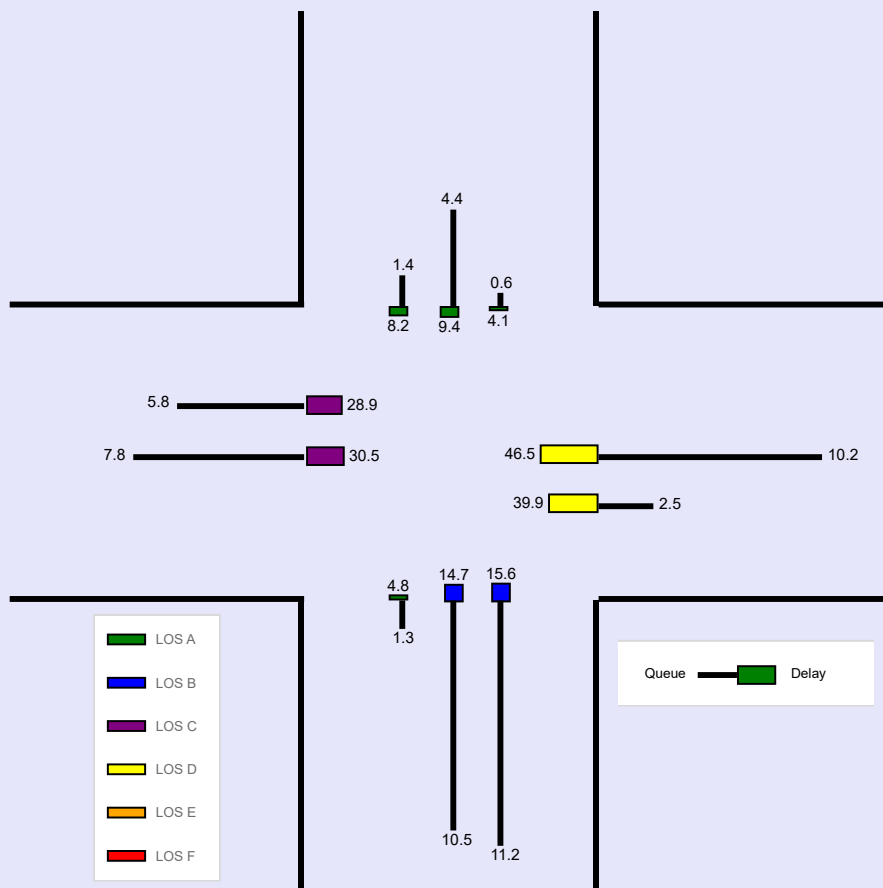
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	184	105	125	59	138	118	174	1499	44	99	955	107

Signal Information

Cycle, s	110.0	Reference Phase	2								
Offset, s	0	Reference Point	Begin	Green	5.3	3.2	56.0	10.9	16.6	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	0.0	4.5	3.0	3.5	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.5	0.0	1.0	0.5	2.0	0.0	

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	148	195		62.4	258.3		32	273.7	279.2	14.3	112.9	36.7
Back of Queue (Q), veh/ln (95 th percentile)	5.8	7.8		2.5	10.2		1.3	10.5	11.2	0.6	4.4	1.4
Queue Storage Ratio (RQ) (95 th percentile)	0.76	0.00		0.62	0.00		0.14	0.00	0.00	0.08	0.00	0.20
Control Delay (d), s/veh	28.9	30.5		39.9	46.5		4.8	14.7	15.6	4.1	9.4	8.2
Level of Service (LOS)	C	C		D	D		A	B	B	A	A	A
Approach Delay, s/veh / LOS	29.7	C		45.1	D		14.0	B		8.8	A	
Intersection Delay, s/veh / LOS	16.6						B					



--- Messages ---

No errors or warnings exist.

--- Comments ---

HCS7 Signalized Intersection Input Data

General Information						Intersection Information							
Agency						Duration, h		1.000					
Analyst		Analysis Date		1/28/2020		Area Type		Other					
Jurisdiction		Time Period				PHF		1.00					
Urban Street		Fortuna Rd NW		Analysis Year		2020		Analysis Period		1> 7:00			
Intersection		Coors Blvd		File Name		AM Peak Hour Buildout.xus							
Project Description													

Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				184	104	132	89	142	118	174	1499	105	124	955	107

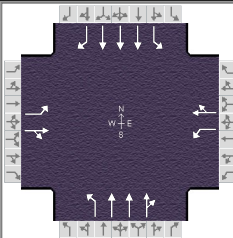
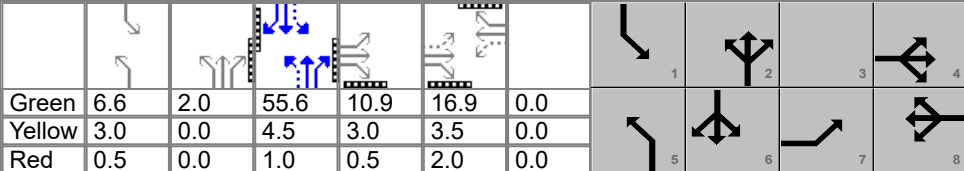
Signal Information										
Cycle, s	110.0	Reference Phase	2	Green	6.6	2.0	55.6	10.9	16.9	0.0
Offset, s	0	Reference Point	Begin	Yellow	3.0	0.0	4.5	3.0	3.5	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	0.5	0.0	1.0	0.5	2.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On							

Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				184	104	132	89	142	118	174	1499	105	124	955	107
Initial Queue (Q_0), veh/h				0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h				1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993	1993
Parking (N_m), man/h					None			None			None			None	
Heavy Vehicles (P_{HV}), %				3	0		0	2		2	5		1	2	3
Ped / Bike / RTOR, /h				1	0	18	0	0	27	0	0	2	3	0	0
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft				12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft				196	0		100	0		0	0		0	0	0
Grade (P_g), %					0			0			0			0	
Speed Limit, mi/h				25	25	25	25	25	25	45	45	45	45	45	45

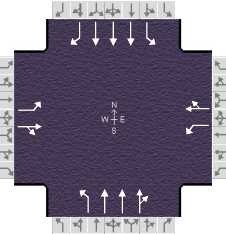
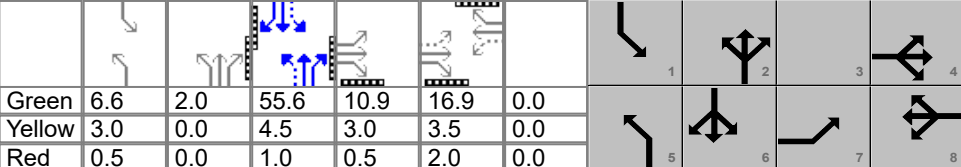
Phase Information		EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s		15.4	51.7		36.3	16.5	45.1	13.2	41.8
Yellow Change Interval (Y), s		3.0	3.5		3.5	3.0	4.5	3.0	4.5
Red Clearance Interval (R_c), s		0.5	2.0		2.0	0.5	1.0	0.5	1.0
Minimum Green (G_{min}), s		3	8		8	3	16	3	16
Start-Up Lost Time (lt), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off	Off		Off	Off	Min	Off	Min
Dual Entry		No	Yes		Yes	No	Yes	No	Yes
Walk ($Walk$), s			7.0		7.0		7.0		7.0
Pedestrian Clearance Time (PC), s			30.0		30.0		15.0		13.0

Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0	No	25	0	No	25	0	No	25	0	No	25
Walkway / Crosswalk Width / Length, ft				9.0	12	0	9.0	12	0	9.0	12	0	9.0	12	0
Street Width / Island / Curb				0	0	No	0	0	No	0	0	No	0	0	No
Width Outside / Bike Lane / Shoulder, ft				12	5.0	2.0	12	5.0	2.0	12	5.0	2.0	12	5.0	2.0
Pedestrian Signal / Occupied Parking				No		0.50	No		0.50	No		0.50	No		0.50

HCS7 Signalized Intersection Results Summary

General Information						Intersection Information									
Agency						Duration, h		1.000							
Analyst				Analysis Date		1/28/2020		Area Type		Other					
Jurisdiction				Time Period				PHF		1.00					
Urban Street		Fortuna Rd NW		Analysis Year		2020		Analysis Period		1> 7:00					
Intersection		Coors Blvd		File Name		AM Peak Hour Buildout.xus									
Project Description															
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				184	104	132	89	142	118	174	1499	105	124	955	107
Signal Information															
Cycle, s	110.0	Reference Phase	2												
Offset, s	0	Reference Point	Begin												
Uncoordinated	No	Simult. Gap E/W	On		Green	6.6	2.0	55.6	10.9	16.9	0.0				
Force Mode	Fixed	Simult. Gap N/S	On		Yellow	3.0	0.0	4.5	3.0	3.5	0.0				
				Red	0.5	0.0	1.0	0.5	2.0	0.0					
Timer Results				EBL	EBT	WBL		WBT	NBL	NBT	SBL	SBT			
Assigned Phase				7	4			8	5	2	1	6			
Case Number				1.0	4.0			6.3	1.1	4.0	1.1	3.0			
Phase Duration, s				14.4	36.8			22.4	12.1	63.1	10.1	61.1			
Change Period, (Y+R c), s				3.5	5.5			5.5	3.5	5.5	3.5	5.5			
Max Allow Headway (MAH), s				3.2	3.4			3.4	3.0	0.0	3.0	0.0			
Queue Clearance Time (g s), s				10.9	12.4			15.5	8.4		6.6				
Green Extension Time (g e), s				0.0	1.2			1.1	0.3	0.0	0.2	0.0			
Phase Call Probability				1.00	1.00			1.00	1.00		0.98				
Max Out Probability				1.00	0.00			0.00	0.00		0.00				
Movement Group Results				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h				184	218		89	233		174	1062	540	124	955	107
Adjusted Saturation Flow Rate (s), veh/h/ln				1854	1820		1180	1833		1868	1823	1852	1883	1520	1645
Queue Service Time (g s), s				8.9	10.4		7.4	13.5		6.4	19.2	19.2	4.6	9.2	2.2
Cycle Queue Clearance Time (g c), s				8.9	10.4		7.4	13.5		6.4	19.2	19.2	4.6	9.2	2.2
Green Ratio (g/C)				0.27	0.28		0.15	0.15		0.59	0.52	0.52	0.57	0.51	0.51
Capacity (c), veh/h				284	518		247	282		460	1911	971	283	2304	831
Volume-to-Capacity Ratio (X)				0.647	0.421		0.360	0.826		0.379	0.556	0.556	0.437	0.414	0.129
Back of Queue (Q), ft/ln (95 th percentile)				147.3	200.1		96.8	261.9		33.3	287.9	290.5	18	113.4	36.8
Back of Queue (Q), veh/ln (95 th percentile)				5.8	8.0		3.9	10.3		1.3	11.1	11.6	0.7	4.5	1.4
Queue Storage Ratio (RQ) (95 th percentile)				0.75	0.00		0.97	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d 1), s/veh				25.4	30.3		40.7	43.9		4.8	14.3	14.3	4.0	8.9	7.9
Incremental Delay (d 2), s/veh				3.3	0.2		0.3	2.4		0.2	1.2	2.3	0.4	0.6	0.3
Initial Queue Delay (d 3), s/veh				0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh				28.7	30.5		41.0	46.3		5.0	15.5	16.6	4.4	9.5	8.2
Level of Service (LOS)				C	C		D	D		A	B	B	A	A	A
Approach Delay, s/veh / LOS				29.7	C		44.8	D		14.8	B		8.8	A	
Intersection Delay, s/veh / LOS				17.1						B					
Multimodal Results				EB			WB			NB			SB		
Pedestrian LOS Score / LOS				2.59	C		2.73	C		1.94	B		1.93	B	
Bicycle LOS Score / LOS				1.15	A		1.02	A		1.46	A		1.14	A	

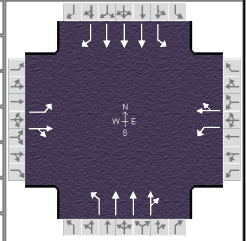
HCS7 Signalized Intersection Intermediate Values

General Information						Intersection Information											
Agency						Duration, h		1.000									
Analyst				Analysis Date		1/28/2020		Area Type		Other							
Jurisdiction				Time Period				PHF		1.00							
Urban Street		Fortuna Rd NW		Analysis Year		2020		Analysis Period		1> 7:00							
Intersection		Coors Blvd		File Name		AM Peak Hour Buildout.xus											
Project Description																	
Demand Information						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						184	104	132	89	142	118	174	1499	105	124	955	107
Signal Information																	
Cycle, s	110.0	Reference Phase	2														
Offset, s	0	Reference Point	Begin														
Uncoordinated	No	Simult. Gap E/W	On														
Force Mode	Fixed	Simult. Gap N/S	On														
				Green	6.6	2.0	55.6	10.9	16.9	0.0							
				Yellow	3.0	0.0	4.5	3.0	3.5	0.0							
				Red	0.5	0.0	1.0	0.5	2.0	0.0							
Saturation Flow / Delay						L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})						0.977	1.000	1.000	1.000	0.984	1.000	0.984	0.961	1.000	0.992	0.984	0.977
Parking Activity Adjustment Factor (f_p)						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})						1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.952	1.000	1.000	0.775	1.000
Left-Turn Adjustment Factor (f_{LT})						0.952	0.000		0.593	0.000		0.952	0.000		0.952	0.000	
Right-Turn Adjustment Factor (f_{RT})							0.913	0.913		0.934	0.934		0.967	0.967		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{LPb})						1.000			0.999			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{Rpb})								0.999			1.000			1.000			0.997
Work Zone Adjustment Factor (f_{WZ})						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})						1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Movement Saturation Flow Rate (s), veh/h						1854	868	952	1180	1117	716	1868	5144	353	1883	4559	1645
Proportion of Vehicles Arriving on Green (P)						0.32	0.32	0.32	0.19	0.19	0.15	0.60	0.60	0.60	0.72	0.72	0.72
Incremental Delay Factor (k)						0.14	0.04		0.04	0.04		0.04	0.50	0.50	0.04	0.50	0.50
Signal Timing / Movement Groups						EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R				
Lost Time (t_L)						3.5	5.5		5.5	3.5	5.5	3.5	5.5				
Green Ratio (g/C)						0.27	0.28		0.15	0.59	0.52	0.57	0.51				
Permitted Saturation Flow Rate (s_p), veh/h/ln						1138	0		1180	588	0	320	0				
Shared Saturation Flow Rate (s_{sh}), veh/h/ln																	
Permitted Effective Green Time (g_p), s						18.9	0.0		16.9	56.2	0.0	55.6	0.0				
Permitted Service Time (g_u), s						3.5	0.0		16.9	46.4	0.0	36.4	0.0				
Permitted Queue Service Time (g_{ps}), s						2.1			7.2	1.4		2.5					
Time to First Blockage (g_r), s						0.0	0.0		0.0	0.0	0.0	0.0	0.0				
Queue Service Time Before Blockage (g_{ts}), s																	
Protected Right Saturation Flow (s_R), veh/h/ln													0				
Protected Right Effective Green Time (g_R), s													0.0				
Multimodal						EB			WB			NB			SB		
Pedestrian F_w / F_v						1.852	0.003	1.983	0.000	1.198	0.038	1.198	0.026				
Pedestrian F_s / F_{delay}						0.000	0.134	0.000	0.147	0.000	0.101	0.000	0.104				
Pedestrian M_{corner} / M_{cw}																	
Bicycle c_b / d_b						568.92	28.16	307.89	39.37	1047.88	12.46	1010.97	13.45				
Bicvcle F_w / F_v						-3.64	0.66	-3.64	0.53	-3.64	0.98	-3.64	0.65				

HCS7 Signalized Intersection Results Graphical Summary

General Information

Agency		Intersection Information	
Analyst		Duration, h	1.000
Jurisdiction		Area Type	Other
Urban Street	Fortuna Rd NW	PHF	1.00
Intersection	Coors Blvd	Analysis Year	2020
Project Description		Analysis Period	1> 7:00
		File Name	AM Peak Hour Buildout.xus



Demand Information

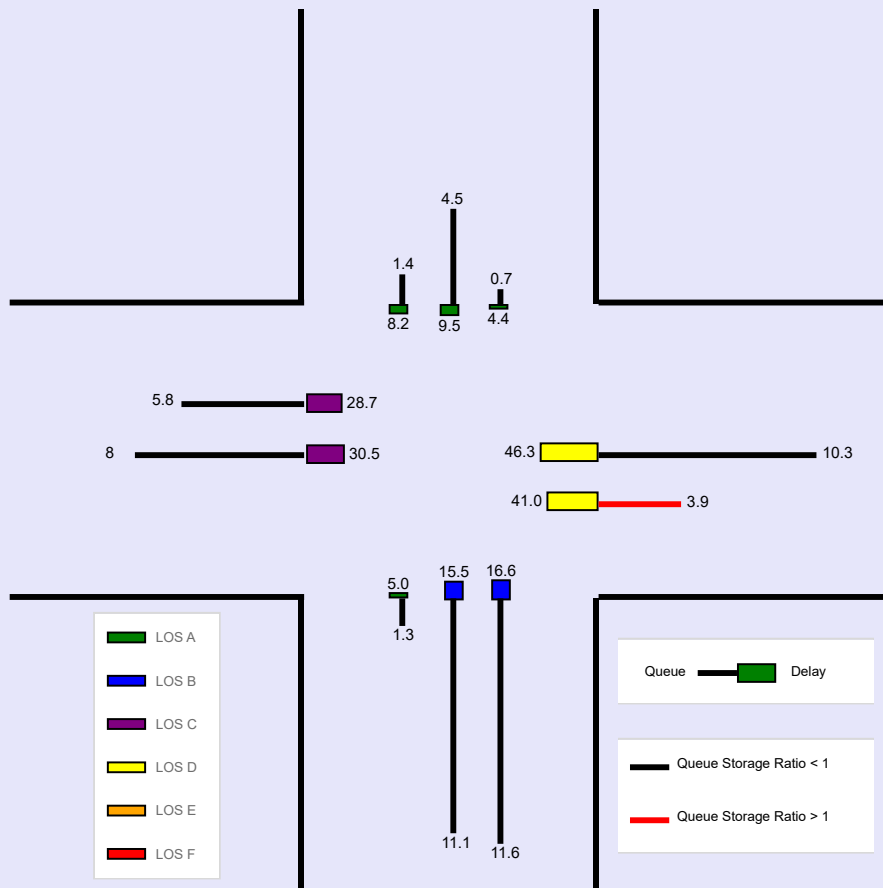
	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	184	104	132	89	142	118	174	1499	105	124	955	107

Signal Information

Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	Begin
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On
		Green	6.6
		Yellow	3.0
		Red	0.5

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	147.3	200.1		96.8	261.9		33.3	287.9	290.5	18	113.4	36.8
Back of Queue (Q), veh/ln (95 th percentile)	5.8	8.0		3.9	10.3		1.3	11.1	11.6	0.7	4.5	1.4
Queue Storage Ratio (RQ) (95 th percentile)	0.75	0.00		0.97	0.00		0.00	0.00	0.00	0.00	0.00	0.00
Control Delay (d), s/veh	28.7	30.5		41.0	46.3		5.0	15.5	16.6	4.4	9.5	8.2
Level of Service (LOS)	C	C		D	D		A	B	B	A	A	A
Approach Delay, s/veh / LOS	29.7	C		44.8	D		14.8	B		8.8	A	
Intersection Delay, s/veh / LOS	17.1						B					



--- Messages ---

No errors or warnings exist.

--- Comments ---

Appendix F:
AASHTO Green Book Intersection Sight
Distance Calculations

AASHTO Green Book Intersection Sight Distance Calculations:

$$ISD = 1.47 \times V_{major} t_g$$

Where:

ISD = intersection sight distance (length of the leg of sight triangle along the major road) (ft)

V_{major} = design speed of major road (mph)

t_g = time gap for minor road vehicle to enter the major road (s)

Time gap for passenger car to turn right is 6.5 plus an additional 0.5 for each additional lane to be crossed

Time gap for passenger car k to turn left is 7.5 plus an additional 0.5 for each additional lane to be crossed

$$Case\ B1\ US\ 491 = 1.47 \times 25 \times (7.5) \approx 280$$

$$Case\ B2\ US\ 491 = 1.47 \times 25 \times (6.5) \approx 240$$