Stolfus

Memorandum

To: Jennifer Allison, PE

From: Max Rusch, PE

Date: August 1, 2019

Re: US 160/CR 225 Traffic Analysis

This memo analyzes alternative traffic configurations for the intersection of US 160 and La Plata County Road 225. Several future scenarios are considered, including one with growth consistent with long-term projections and one that considers high intensity development near the intersection.

Traffic Volumes

This report analyzes three scenarios. They are Existing (Year 2019), Year 2040 Background, and Year 2040 Development. Using turning movement counts from 2016 and growth rates from CDOT Count Stations, volumes were projected for each scenario. The volumes for each time period, as well as the volumes generated by background growth and the development can be found in the Appendix.

Existing Conditions: The Existing Conditions scenario models the intersection in June 2019. June was the month chosen since it is in the peak season for traffic volumes, and turning movement counts from 6/1/16 and 6/2/16 were provided. Counts had also been provided from January 2019. Since the traffic flows are different in January due to seasonal variations in trip destinations, it was considered more accurate to model the volumes based on the June 2016 counts. CDOT Continuous Count Station #000217 has recorded an annual growth rate of 1.11%. The turning movement counts from 2016 were inflated by this rate to estimate the 2019 volumes.

2040 Background: This scenario assumes that the traffic volumes have increased due to background growth, but no specific properties have been developed. Using the growth projections from CDOT Count Station #104815, the 2019 volumes were grown at an annual rate of 1.9% for 21 years, giving an equivalent growth factor of 1.48. The growth rate from this count station was used as it is the closest to the study area. Since CR 225 extends through locations that have the potential for future growth, the volumes on CR 225 were also grown by this same rate.

2040 Development: This scenario assumes that the Burkett properties on the northeast side of the intersection have been fully built out. From the information provided, 339 acres of land is designated as Large Lot Residential, 121 acres is Suburban, and 204 acres is Mixed Use. It was assumed that Single-Family Detached Housing will be built on the areas designated as Large Lot Residential and Suburban, while the Mixed Use was assumed to be developed as 25% General Light Industrial, and 75% Apartments. The *ITE Trip Generation Manual, 9th edition* was used to calculate how many trips would be generated once this land was fully developed. See attachments for a detailed trip generation table.

The trips to and from the development were distributed proportionally to the existing turning movements at the intersection of US 160 and CR 225. The table below shows the percentage of trips that start/end in each direction of the intersection. Of the generated trips traveling east, 80% were assumed to pass through the intersection of US 160 and CR 225, while the remaining 20% were assumed to take other routes.

Start/End Point	Percent of Trips
North on CR-225	5%
South on CR-225	8%
West on US-160	70%
East on US-160	17%

The trips generated from the development were added to the 2040 Background volumes to get the 2040 Development volumes.

Traffic Operations

The intersection of US 160 and CR 225 is currently a two-way stop-controlled intersection. In each future scenario, a stop-controlled intersection, roundabout, and signal were analyzed. HCS7 was used to model the stop-controlled intersection, Sidra was used for the roundabout analysis, and Synchro was used for the signalized intersection. The reported results from Sidra are consistent with the HCM 6th edition results. The Existing Conditions scenario uses existing roadway geometry, while both future scenarios assume that US 160 has two thru lanes in each direction, consistent with the US 160 EIS.

Existing Conditions: The Existing Conditions scenario analyzes traffic operations under two-way stop control. In addition to the existing intersection layout, acceleration lanes for the northbound and southbound left turn movements were evaluated. Operations for the left turn acceleration lanes were evaluated by assuming zero thru traffic in the direction of the acceleration lane. This simulates the vehicle only having to cross one direction of mainline traffic. The table below shows the traffic operations for Existing Conditions. Per the HCM 6th edition, for two-way stop-controlled intersections, the worst movement at the intersection is reported.

	AM			PM		
	Movement	Delay (sec)	LOS (V/C)	Movement	Delay (sec)	LOS (V/C)
Two-Way Stop-Control	NBL	191.3	F(1.15)	NBL	57.1	F(0.41)
Two-Way Stop-Control (With Accel Lanes)	SBT	28.0	D	NBT	32.3	D

The existing two-way stop-control intersection currently operates at LOS F in both time periods due to the northbound left turn movement. With the addition of acceleration lanes, the intersection is expected to operate at LOS D.

2040 Background: This scenario analyzes the intersection as a two-way stop-controlled intersection with acceleration lanes for the northbound and southbound left turn movements, as

a roundabout, and as a signalized intersection. It is assumed US 160 will have two thru lanes in each direction by year 2040. CR 225 is modeled as a two-lane highway for all three intersection alternatives, and has right and left turn lanes for the stop control and signalized scenarios.

The Peak Hour Signal Warrant was used to predict whether future traffic volumes will be high enough to warrant a signal. Given the mainline volume, the side street volume would have to be 200 vph to meet the warrant, and it is projected to be 206 vph. A full warrant study is required prior to installation of traffic signal. The table below shows the traffic operations for the 2040 Background scenario.

	AM				PM			
	Movement	Worst Movement Delay (sec)	Intersection Ave Delay (Sec)	LOS (V/C)	Movement	Worst Movement Delay (sec)	Intersection Ave Delay (Sec)	LOS (V/C)
Two-Way Stop-Control (With Accel Lanes)	SBT	70.3	-	F(0.06)	NBT	140.6	-	F(0.38)
Roundabout	SB	10.2	8.8	B	NB	11.8	8.3	B
Signal	-	-	11.1	B	-	-	9.4	A

Even with the acceleration lanes, the two-way stop-control intersection is expected to operate at LOS F for both time periods. This is due to the side street thru movements having difficulty finding gaps in the increased traffic on US 160. Per the Highway Capacity Manual, the LOS of a roundabout is measured by the average vehicle delay on the worst leg, while the LOS of a signalized intersection is measured by the average intersection delay. The average intersection delay of the roundabout was included in the table as well, to better compare its overall impact to the signalized option. Both the roundabout and signal are expected to operate well, with a comparable overall intersection delay between the two.

2040 Development: This scenario analyzes the intersection as a two-way stop-controlled intersection with acceleration lanes, as a roundabout, and as a signal. Due to increased volumes on the north leg of CR 225 from the development, several changes were made to the intersection layouts. The signalized intersection was modeled with dual eastbound left turn lanes in order to accommodate a left turning movement of 503 vehicles in the PM peak hour. A roundabout alternative with a southbound right turn bypass lane was also modeled. The table below shows the traffic operations for the 2040 Development scenario.

	AM				PM			
	Movement	Worst Movement Delay (sec)	Intersection Ave Delay (Sec)	LOS (V/C)	Movement	Worst Movement Delay (sec)	Intersection Ave Delay (Sec)	LOS (V/C)
Two-Way Stop-Control (With Accel Lanes)	SBT	1563.8	-	F(3.25)	NBT	6856.8	-	F(13.00)
Roundabout (1 lane on north leg)	SB	348.3	86.3	F	SB	96.8	28.9	F
Roundabout (SBR bypass lane & 2 exiting lanes on north leg)	WB	16.8	12.1	B	NB	18.0	12.0	B
Signal (with EB dual left turn lanes)	-	-	18.5	B	-	-	15.6	B

As expected, the two way stop control intersection is far over capacity and signalization or other intersection configurations would have to be implemented. The 2040 Background scenario

analyzes a roundabout with two entering/exiting lanes on US 160, and one entering/exiting lane on CR 225. In the Development scenario, this roundabout design operates at LOS F due to the increased traffic on the north leg of CR 225. If a southbound right turn bypass lane as well as a second exiting lane is installed on the north leg of the roundabout, the roundabout operates at LOS B. The overall delays between the roundabout and signal are comparable in both time periods.

Conclusions

At the intersection of US 160 and CR 225, the northbound left turn movement currently operates over capacity in the AM peak hour. Northbound and southbound left turn acceleration lanes will initially help operations. However, by year 2040, it is anticipated that thru volumes on US 160 will have grown enough that side street operations will be problematic even with acceleration lanes and additional thru lanes on US 160.

Absent large-scale development, it is unlikely that enough side road traffic will be present to warrant a traffic signal prior to some movements operating at unacceptable LOS. In the 2040 Development scenario, the built-out Burkett properties generate enough traffic to warrant a signal, but a roundabout would also function at acceptable levels. Average delays between the signalized intersection and roundabout are comparable. Given the risk that the two-way stop-controlled intersection may operate poorly, but not yet warrant signalization, the 2040 Baseline roundabout design is recommended from a traffic operations perspective. Should the Burkett properties be developed to the extent that the north leg of the roundabout fails, it should be the developer's responsibility to improve the roundabout in order to maintain acceptable traffic operations.

Attach: Traffic Volume Projections
Development Trip Generation and Distribution
Intersection LOS Reports

Volume per Scenario

	AM Peak Hour (7:15-8:15)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing (2019)	23	295	24	2	670	13	131	7	13	15	2	89
Trips from Backround Growth(2019-2040)	11	143	12	1	325	7	64	4	7	8	1	43
2040 No Build	34	438	35	3	994	20	195	11	20	23	3	132
Trips From Development	319					61		36		65	39	339
2040 Build	353	438	35	3	994	81	195	47	20	88	42	471

	PM Peak Hour (4:30-5:30)											
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Existing (2019)	75	705	114	8	412	8	46	9	6	18	7	40
Trips from Backround Growth(2019-2040)	37	342	55	4	200	4	23	5	3	9	4	20
2040 No Build	112	1046	169	12	611	12	69	14	9	26	11	60
Trips From Development	391					75		44		74	43	381
2040 Build	503	1046	169	12	611	88	69	58	9	100	54	441

Trip Generation

ITE Land Use	Code	Units		AM Peak Rate	AM Peak Entering %	AM Peak Exiting %	AM Peak Trips Entering	AM Peak Trips Exiting	PM Peak Rate	PM Peak Entering %	PM Peak Exiting %	PM Peak Trips Entering	PM Peak Trips Exiting
Single-Family Detached Housing	210	84	Units	0.75	25%	75%	16	47	1.00	63%	37%	53	31
General Light Industrial	110	51.1	Acres	7.96	85%	15%	345	61	8.77	30%	70%	134	313
Apartment	220	919	Units	0.51	20%	80%	94	375	0.62	65%	35%	370	199
Total							455	483				558	544

HCS7 Two-Way Stop-Control Report

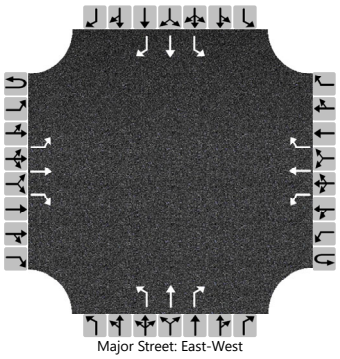
General Information

Analyst	Max Rusch
Agency/Co.	Stolfus and Associates
Date Performed	4/30/2019
Analysis Year	2019
Time Analyzed	7:15-8:15
Intersection Orientation	East-West
Project Description	US-160 & CR-225 Intersection Analysis

Site Information

Intersection	US-160 & CR-225
Jurisdiction	
East/West Street	US-160
North/South Street	CR-225
Peak Hour Factor	0.89
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	1	0	1	1	1		1	1	1		1	1	1
Configuration		L	T	R		L	T	R		L	T	R		L	T	R
Volume (veh/h)		23	295	24		2	670	13		131	7	13		15	2	89
Percent Heavy Vehicles (%)		0				0				1	0	0		20	50	5
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		Yes				Yes				Yes				Yes		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.10				4.10				7.11	6.50	6.20		7.30	7.00	6.25
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.51	4.00	3.30		3.68	4.45	3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		26				2				147	8	15		17	2	100
Capacity, c (veh/h)		866				1239				128	196	715		148	159	405
v/c Ratio		0.03				0.00				1.15	0.04	0.02		0.11	0.01	0.25
95% Queue Length, Q_{95} (veh)		0.1				0.0				8.7	0.1	0.1		0.4	0.0	1.0
Control Delay (s/veh)		9.3				7.9				191.3	24.1	10.1		32.5	28.0	16.8
Level of Service (LOS)		A				A				F	C	B		D	D	C
Approach Delay (s/veh)		0.6				0.0				168.0				19.2		
Approach LOS										F				C		

HCS7 Two-Way Stop-Control Report

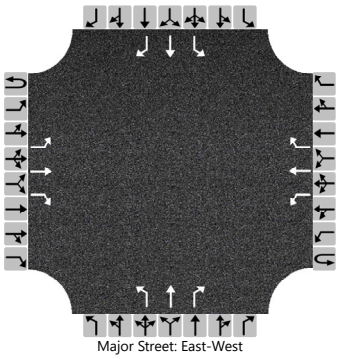
General Information

Analyst	Max Rusch
Agency/Co.	Stolfus and Associates
Date Performed	4/30/2019
Analysis Year	2019
Time Analyzed	4:30-5:30
Intersection Orientation	East-West
Project Description	US-160 & CR-225 Intersection Analysis

Site Information

Intersection	US-160 & CR-225
Jurisdiction	
East/West Street	US-160
North/South Street	CR-225
Peak Hour Factor	0.98
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	1	0	1	1	1		1	1	1		1	1	1
Configuration		L	T	R		L	T	R		L	T	R		L	T	R
Volume (veh/h)		75	705	114		8	412	8		46	9	6		18	7	40
Percent Heavy Vehicles (%)		7				13				2	11	17		6	0	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		Yes				Yes				Yes				Yes		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.1	6.5	6.2		7.1	6.5	6.2
Critical Headway (sec)		4.17				4.23				7.12	6.61	6.37		7.16	6.50	6.23
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.26				2.32				3.52	4.10	3.45		3.55	4.00	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		77				8				47	9	6		18	7	41
Capacity, c (veh/h)		1112				834				114	141	404		106	148	631
v/c Ratio		0.07				0.01				0.41	0.07	0.02		0.17	0.05	0.06
95% Queue Length, Q_{95} (veh)		0.2				0.0				1.7	0.2	0.0		0.6	0.2	0.2
Control Delay (s/veh)		8.5				9.4				57.1	32.3	14.0		45.8	30.5	11.1
Level of Service (LOS)		A				A				F	D	B		E	D	B
Approach Delay (s/veh)		0.7				0.2				49.2				22.8		
Approach LOS										E				C		

HCS7 Two-Way Stop-Control Report

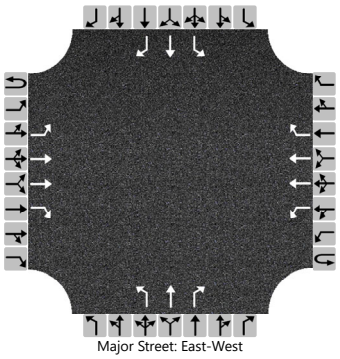
General Information

Analyst	Max Rusch
Agency/Co.	Stolfus and Associates
Date Performed	4/30/2019
Analysis Year	2040 No Build
Time Analyzed	7:15-8:15
Intersection Orientation	East-West
Project Description	US-160 & CR-225 Intersection Analysis

Site Information

Intersection	US-160 & CR-225
Jurisdiction	
East/West Street	US-160
North/South Street	CR-225
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	1		1	1	1		1	1	1
Configuration		L	T	R		L	T	R		L	T	R		L	T	R
Volume (veh/h)	0	34	438	35	0	3	994	20		195	11	20		23	3	132
Percent Heavy Vehicles (%)	3	0			3	0				1	0	0		20	50	5
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		Yes				Yes				Yes				Yes		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.52	6.50	6.90		7.90	7.50	7.00
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.51	4.00	3.30		3.70	4.50	3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		37				3				212	12	22		25	3	143
Capacity, c (veh/h)		653				1097				108	96	769		71	58	478
v/c Ratio		0.06				0.00				1.97	0.12	0.03		0.35	0.06	0.30
95% Queue Length, Q_{95} (veh)		0.2				0.0				17.5	0.4	0.1		1.3	0.2	1.2
Control Delay (s/veh)		10.8				8.3				532.7	47.9	9.8		81.4	70.3	15.7
Level of Service (LOS)		B				A				F	E	A		F	F	C
Approach Delay (s/veh)		0.7				0.0				462.8				26.3		
Approach LOS										F				D		

HCS7 Two-Way Stop-Control Report

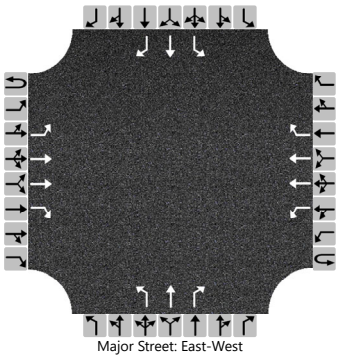
General Information

Analyst	Max Rusch
Agency/Co.	Stolfus and Associates
Date Performed	4/30/2019
Analysis Year	2040 No Build
Time Analyzed	4:30-5:30
Intersection Orientation	East-West
Project Description	US-160 & CR-225 Intersection Analysis

Site Information

Intersection	US-160 & CR-225
Jurisdiction	
East/West Street	US-160
North/South Street	CR-225
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	1		1	1	1		1	1	1
Configuration		L	T	R		L	T	R		L	T	R		L	T	R
Volume (veh/h)	0	112	1046	169	0	12	611	12		69	14	9		26	11	60
Percent Heavy Vehicles (%)	3	7			3	13				2	11	17		6	0	3
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		Yes				Yes				Yes				Yes		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.24				4.36				7.54	6.72	7.24		7.62	6.50	6.96
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.27				2.33				3.52	4.11	3.47		3.56	4.00	3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		122				13				75	15	10		28	12	65
Capacity, c (veh/h)		888				551				35	40	430		49	46	661
v/c Ratio		0.14				0.02				2.13	0.38	0.02		0.58	0.26	0.10
95% Queue Length, Q_{95} (veh)		0.5				0.1				8.3	1.3	0.1		2.2	0.9	0.3
Control Delay (s/veh)		9.7				11.7				766.0	140.6	13.6		151.9	108.5	11.0
Level of Service (LOS)		A				B				F	F	B		F	F	B
Approach Delay (s/veh)		0.8				0.2				597.2				59.9		
Approach LOS										F				F		

HCS7 Two-Way Stop-Control Report

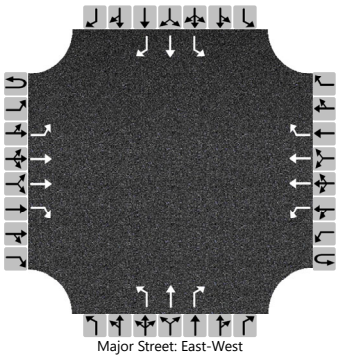
General Information

Analyst	Max Rusch
Agency/Co.	Stolfus and Associates
Date Performed	4/30/2019
Analysis Year	2040
Time Analyzed	7:15-8:15
Intersection Orientation	East-West
Project Description	US-160 & CR-225 Intersection Analysis

Site Information

Intersection	US-160 & CR-225
Jurisdiction	
East/West Street	US-160
North/South Street	CR-225
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	1		1	1	1		1	1	1
Configuration		L	T	R		L	T	R		L	T	R		L	T	R
Volume (veh/h)	0	353	438	35	0	3	994	81		195	47	20		88	42	471
Percent Heavy Vehicles (%)	3	0			3	0				1	0	0		7	7	7
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		Yes				Yes				Yes				Yes		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.10				4.10				7.52	6.50	6.90		7.64	6.64	7.04
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.20				2.20				3.51	4.00	3.30		3.57	4.07	3.37

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		384				3				212	51	22		96	46	512
Capacity, c (veh/h)		653				1097				0	15	769		0	14	473
v/c Ratio		0.59				0.00					3.31	0.03			3.25	1.08
95% Queue Length, Q_{95} (veh)		3.8				0.0					7.1	0.1			6.6	16.5
Control Delay (s/veh)		18.1				8.3					1545.6	9.8			1563.8	94.6
Level of Service (LOS)		C				A					F	A			F	F
Approach Delay (s/veh)		7.7				0.0										
Approach LOS																

HCS7 Two-Way Stop-Control Report

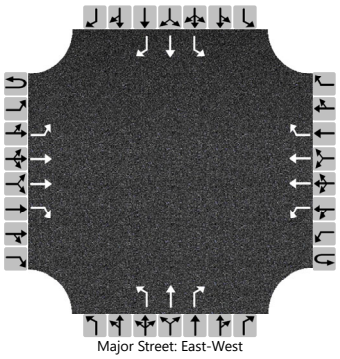
General Information

Analyst	Max Rusch
Agency/Co.	Stolfus and Associates
Date Performed	4/30/2019
Analysis Year	2040
Time Analyzed	4:30-5:30
Intersection Orientation	East-West
Project Description	US-160 & CR-225 Intersection Analysis

Site Information

Intersection	US-160 & CR-225
Jurisdiction	
East/West Street	US-160
North/South Street	CR-225
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	2	1	0	1	2	1		1	1	1		1	1	1
Configuration		L	T	R		L	T	R		L	T	R		L	T	R
Volume (veh/h)	0	503	1046	169	0	12	611	88		69	58	9		100	54	441
Percent Heavy Vehicles (%)	3	7			3	13				2	11	17		6	6	6
Proportion Time Blocked																
Percent Grade (%)										0				0		
Right Turn Channelized		Yes				Yes				No				Yes		
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1				4.1				7.5	6.5	6.9		7.5	6.5	6.9
Critical Headway (sec)		4.24				4.36				7.54	6.72	7.24		7.62	6.62	7.02
Base Follow-Up Headway (sec)		2.2				2.2				3.5	4.0	3.3		3.5	4.0	3.3
Follow-Up Headway (sec)		2.27				2.33				3.52	4.11	3.47		3.56	4.06	3.36

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		547				13				75	63	10		109	59	479
Capacity, c (veh/h)		888				551				0	5	430		0	5	652
v/c Ratio		0.62				0.02					13.00	0.02			11.14	0.74
95% Queue Length, Q_{95} (veh)		4.4				0.1					9.7	0.1			9.1	6.4
Control Delay (s/veh)		15.3				11.7					6856.8	13.6			5908.3	24.3
Level of Service (LOS)		C				B					F	B			F	C
Approach Delay (s/veh)		4.5				0.2										
Approach LOS																

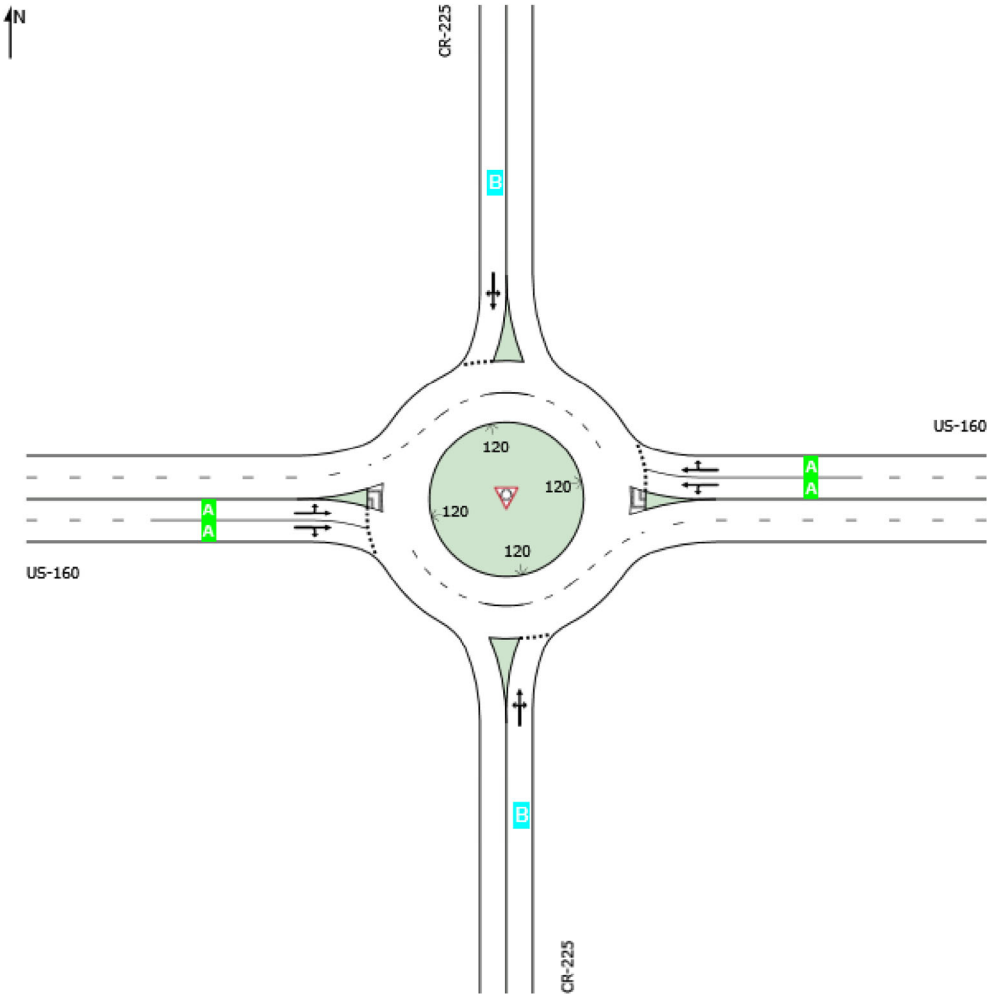
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [2040 No Build AM]

New Site
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	A	B	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: 101 [2040 No Build AM]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: CR-225												
3	L2	212	1.0	0.317	10.9	LOS B	1.1	27.1	0.47	0.79	0.47	35.7
8	T1	12	0.0	0.317	4.5	LOS A	1.1	27.1	0.47	0.79	0.47	31.5
18	R2	22	0.0	0.317	5.0	LOS A	1.1	27.1	0.47	0.79	0.47	34.8
Approach		246	0.9	0.317	10.1	LOS B	1.1	27.1	0.47	0.79	0.47	35.4
East: US-160												
1	L2	3	0.0	0.477	15.3	LOS B	3.6	90.4	0.60	0.65	0.60	39.1
6	T1	1080	2.0	0.477	8.8	LOS A	3.7	92.9	0.59	0.64	0.59	44.7
16	R2	22	8.0	0.477	8.4	LOS A	3.7	92.9	0.58	0.63	0.58	36.9
Approach		1105	2.1	0.477	8.8	LOS A	3.7	92.9	0.59	0.64	0.59	44.5
North: CR-225												
7	L2	25	20.0	0.405	16.6	LOS B	1.7	45.1	0.74	0.89	0.87	33.4
4	T1	3	50.0	0.405	14.0	LOS B	1.7	45.1	0.74	0.89	0.87	31.2
14	R2	143	5.0	0.405	9.0	LOS A	1.7	45.1	0.74	0.89	0.87	34.3
Approach		172	8.0	0.405	10.2	LOS B	1.7	45.1	0.74	0.89	0.87	34.1
West: US-160												
5	L2	37	0.0	0.213	13.6	LOS B	1.4	37.5	0.20	0.52	0.20	40.4
2	T1	476	12.0	0.213	7.4	LOS A	1.4	38.1	0.19	0.50	0.19	45.2
12	R2	38	4.0	0.213	6.7	LOS A	1.4	38.1	0.19	0.49	0.19	38.6
Approach		551	10.6	0.213	7.8	LOS A	1.4	38.1	0.19	0.50	0.19	44.4
All Vehicles		2074	4.7	0.477	8.8	LOS A	3.7	92.9	0.48	0.64	0.50	42.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

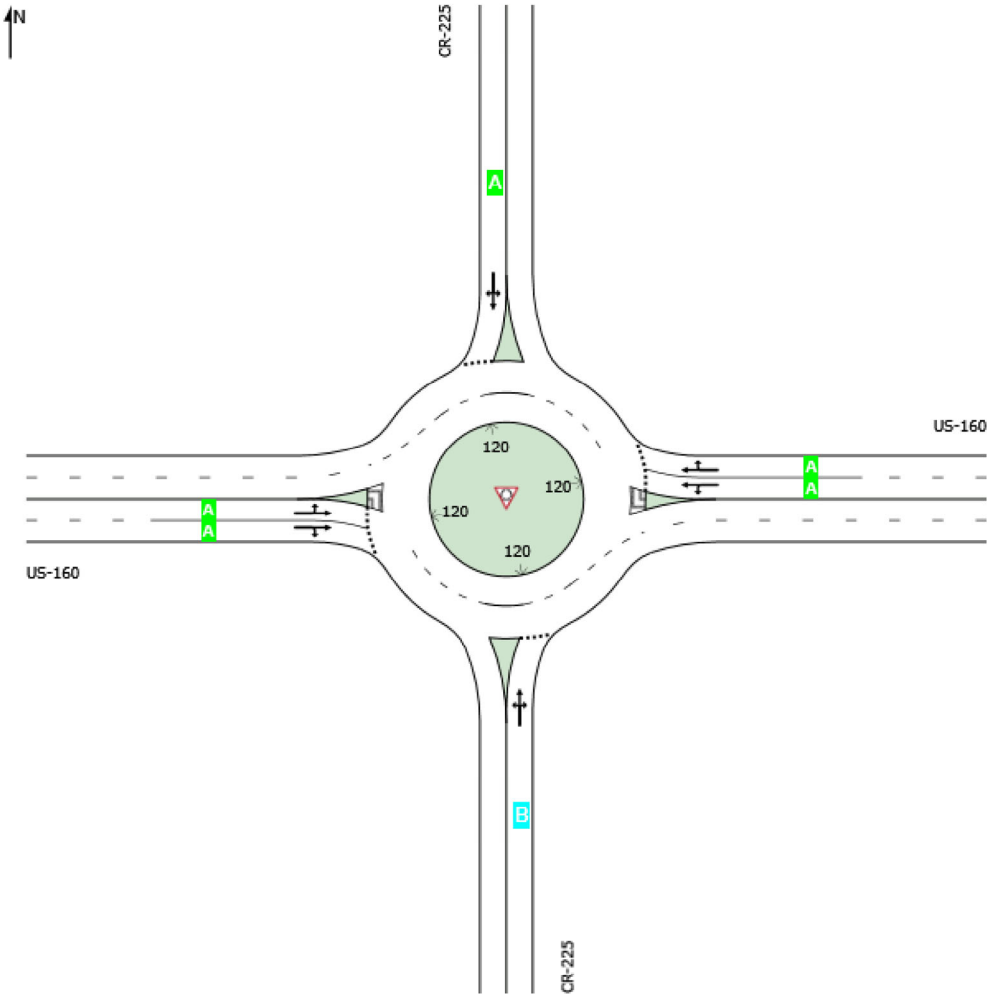
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [2040 No Build PM]

New Site
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	A	A	A	A



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: 101 [2040 No Build PM]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: CR-225												
3	L2	75	2.0	0.196	13.1	LOS B	0.7	17.7	0.63	0.85	0.63	34.6
8	T1	15	11.0	0.196	7.4	LOS A	0.7	17.7	0.63	0.85	0.63	30.8
18	R2	10	17.0	0.196	8.4	LOS A	0.7	17.7	0.63	0.85	0.63	32.3
Approach		100	4.8	0.196	11.8	LOS B	0.7	17.7	0.63	0.85	0.63	33.7
East: US-160												
1	L2	13	13.0	0.306	15.3	LOS B	1.9	50.0	0.48	0.60	0.48	39.3
6	T1	664	8.0	0.306	8.5	LOS A	1.9	50.9	0.47	0.59	0.47	44.5
16	R2	13	13.0	0.306	8.1	LOS A	1.9	50.9	0.46	0.58	0.46	37.4
Approach		690	8.2	0.306	8.6	LOS A	1.9	50.9	0.47	0.59	0.47	44.2
North: CR-225												
7	L2	28	6.0	0.167	11.5	LOS B	0.5	13.9	0.51	0.72	0.51	36.8
4	T1	12	0.0	0.167	4.8	LOS A	0.5	13.9	0.51	0.72	0.51	32.8
14	R2	65	3.0	0.167	5.4	LOS A	0.5	13.9	0.51	0.72	0.51	36.1
Approach		105	3.5	0.167	7.0	LOS A	0.5	13.9	0.51	0.72	0.51	35.9
West: US-160												
5	L2	122	7.0	0.525	14.1	LOS B	4.7	121.7	0.33	0.53	0.33	39.7
2	T1	1137	3.0	0.525	7.5	LOS A	4.7	121.1	0.32	0.51	0.32	45.9
12	R2	184	1.0	0.525	6.9	LOS A	4.7	121.1	0.31	0.50	0.31	38.2
Approach		1442	3.1	0.525	8.0	LOS A	4.7	121.7	0.32	0.51	0.32	44.2
All Vehicles		2338	4.7	0.525	8.3	LOS A	4.7	121.7	0.38	0.56	0.38	43.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

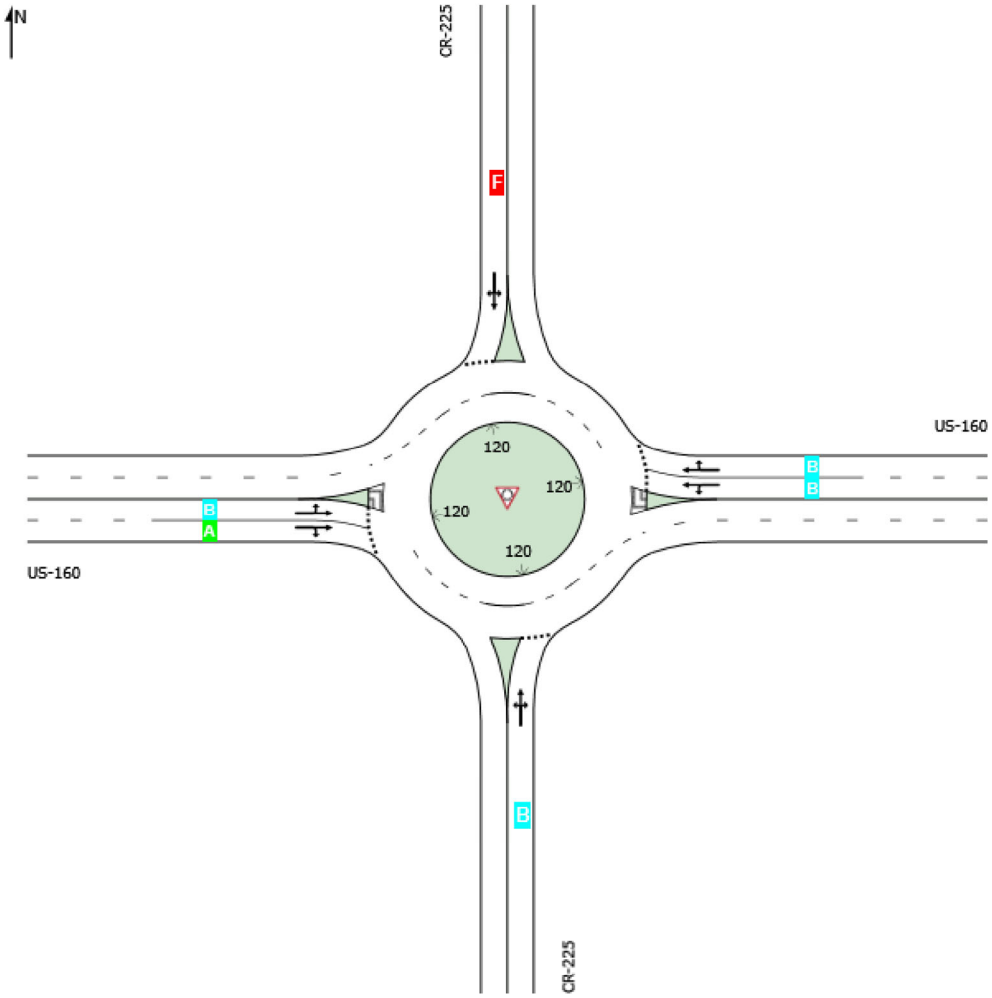
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [2040 Build AM 1 lane]

New Site
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	B	F	B	F



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: 101 [2040 Build AM 1 lane]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: CR-225												
3	L2	212	1.0	0.446	12.9	LOS B	1.9	48.2	0.63	0.88	0.74	35.0
8	T1	51	0.0	0.446	6.5	LOS A	1.9	48.2	0.63	0.88	0.74	31.0
18	R2	22	0.0	0.446	6.9	LOS A	1.9	48.2	0.63	0.88	0.74	34.2
Approach		285	0.7	0.446	11.3	LOS B	1.9	48.2	0.63	0.88	0.74	34.2
East: US-160												
1	L2	3	0.0	0.687	23.7	LOS C	7.8	198.8	0.92	1.05	1.32	35.2
6	T1	1080	2.0	0.687	16.6	LOS B	8.3	212.9	0.92	1.03	1.30	40.2
16	R2	88	8.0	0.687	15.8	LOS B	8.3	212.9	0.92	1.01	1.27	34.1
Approach		1172	2.4	0.687	16.6	LOS B	8.3	212.9	0.92	1.03	1.29	39.7
North: CR-225												
7	L2	96	7.0	1.748	353.4	LOS F	97.3	2567.9	1.00	4.69	12.25	5.6
4	T1	46	7.0	1.748	347.0	LOS F	97.3	2567.9	1.00	4.69	12.25	5.5
14	R2	512	7.0	1.748	347.5	LOS F	97.3	2567.9	1.00	4.69	12.25	5.5
Approach		653	7.0	1.748	348.3	LOS F	97.3	2567.9	1.00	4.69	12.25	5.5
West: US-160												
5	L2	384	0.0	0.359	13.9	LOS B	2.9	74.2	0.36	0.63	0.36	37.7
2	T1	476	12.0	0.359	7.9	LOS A	2.9	74.2	0.38	0.54	0.38	43.7
12	R2	38	4.0	0.359	7.1	LOS A	2.8	76.2	0.39	0.52	0.39	37.8
Approach		898	6.5	0.359	10.4	LOS B	2.9	76.2	0.38	0.58	0.38	40.6
All Vehicles		3008	4.5	1.748	86.3	LOS F	97.3	2567.9	0.75	1.67	3.35	17.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

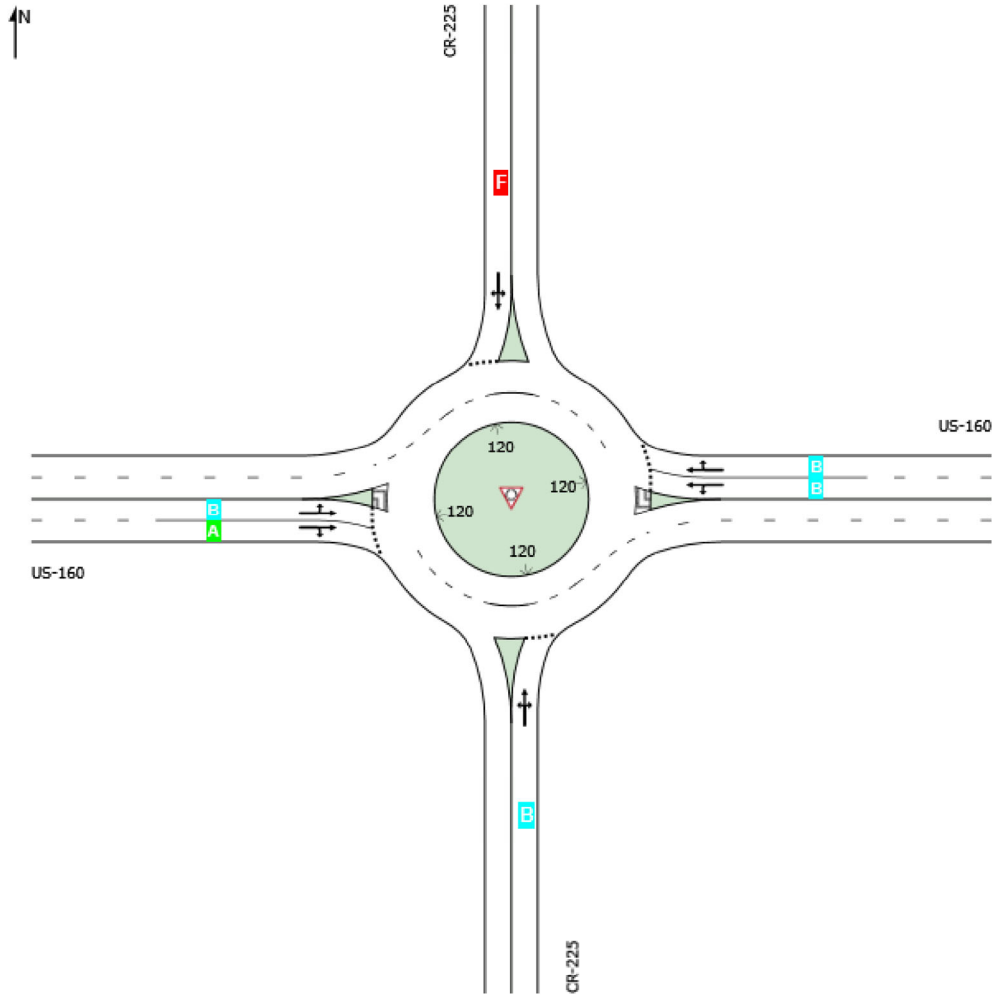
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [2040 Build PM 1 lane]

New Site
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	B	F	B	C



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: 101 [2040 Build PM 1 lane]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: CR-225												
3	L2	75	2.0	0.557	20.4	LOS C	2.7	70.9	0.90	1.02	1.14	31.7
8	T1	63	11.0	0.557	15.1	LOS B	2.7	70.9	0.90	1.02	1.14	28.4
18	R2	10	17.0	0.557	16.5	LOS B	2.7	70.9	0.90	1.02	1.14	29.8
Approach		148	6.8	0.557	17.9	LOS B	2.7	70.9	0.90	1.02	1.14	30.1
East: US-160												
1	L2	13	13.0	0.598	24.5	LOS C	5.6	149.8	0.95	1.05	1.23	34.9
6	T1	664	8.0	0.598	16.6	LOS B	6.1	162.9	0.95	1.04	1.22	39.5
16	R2	96	13.0	0.598	15.6	LOS B	6.1	162.9	0.96	1.02	1.21	34.2
Approach		773	8.7	0.598	16.6	LOS B	6.1	162.9	0.95	1.03	1.22	38.7
North: CR-225												
7	L2	109	6.0	1.182	101.7	LOS F	41.8	1094.6	1.00	2.87	6.20	14.9
4	T1	59	6.0	1.182	95.4	LOS F	41.8	1094.6	1.00	2.87	6.20	14.2
14	R2	479	6.0	1.182	95.8	LOS F	41.8	1094.6	1.00	2.87	6.20	14.7
Approach		647	6.0	1.182	96.8	LOS F	41.8	1094.6	1.00	2.87	6.20	14.7
West: US-160												
5	L2	547	7.0	0.780	16.7	LOS B	11.5	300.4	0.86	0.69	0.90	36.7
2	T1	1137	3.0	0.780	9.4	LOS A	11.5	300.4	0.84	0.65	0.86	42.9
12	R2	184	1.0	0.780	8.5	LOS A	11.1	283.7	0.83	0.63	0.84	36.2
Approach		1867	4.0	0.780	11.5	LOS B	11.5	300.4	0.84	0.66	0.87	40.2
All Vehicles		3435	5.5	1.182	28.9	LOS C	41.8	1094.6	0.90	1.17	1.96	29.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

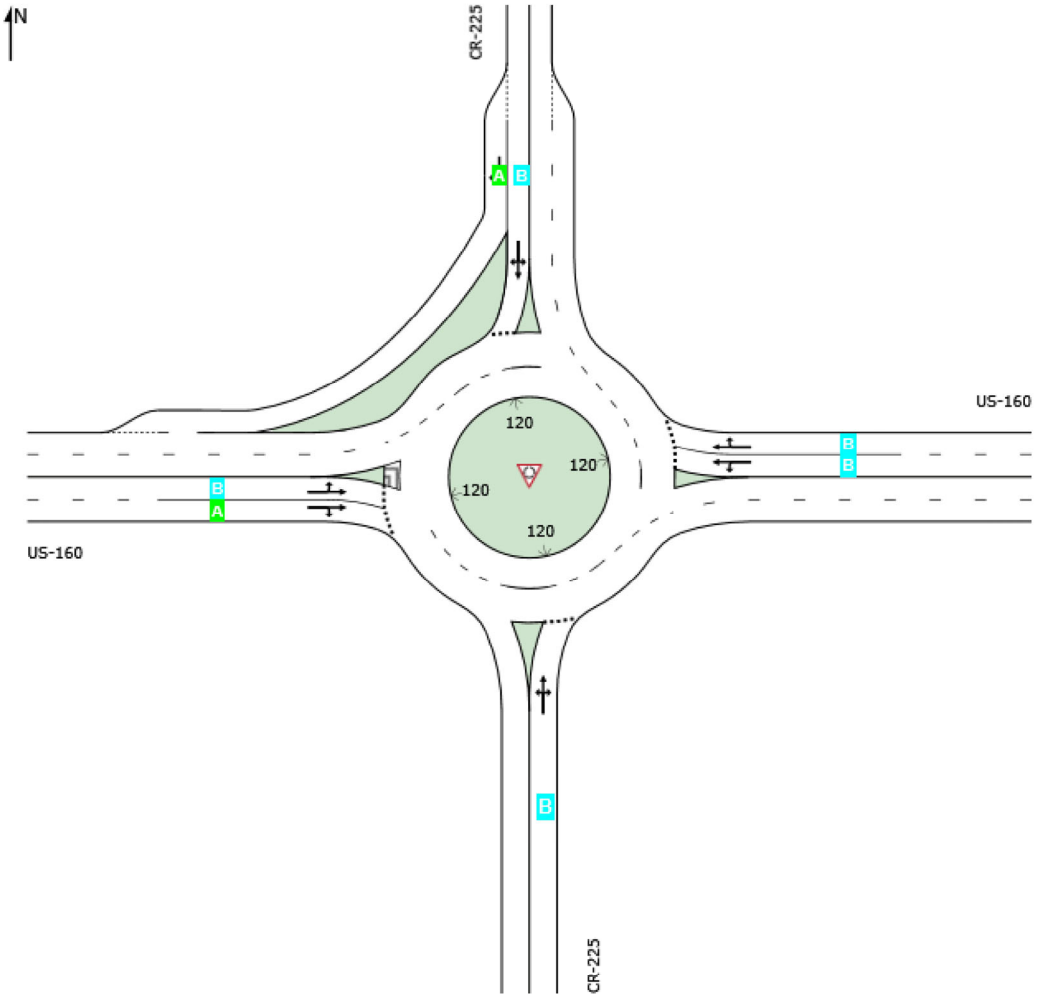
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [2040 Build AM]

New Site
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	B	A	B	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: 101 [2040 Build AM]

New Site
Site Category: (None)
Roundabout

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: CR-225												
3	L2	212	1.0	0.457	13.1	LOS B	2.0	50.8	0.65	0.89	0.77	35.0
8	T1	51	0.0	0.457	6.4	LOS A	2.0	50.8	0.65	0.89	0.77	31.1
18	R2	22	0.0	0.457	7.1	LOS A	2.0	50.8	0.65	0.89	0.77	34.1
Approach		285	0.7	0.457	11.4	LOS B	2.0	50.8	0.65	0.89	0.77	34.2
East: US-160												
1	L2	3	0.0	0.730	23.5	LOS C	8.2	208.7	0.90	1.07	1.33	35.5
6	T1	1080	2.0	0.730	16.8	LOS B	8.4	214.7	0.90	1.07	1.33	40.2
16	R2	88	8.0	0.730	16.6	LOS B	8.4	214.7	0.90	1.06	1.32	33.9
Approach		1172	2.4	0.730	16.8	LOS B	8.4	214.7	0.90	1.07	1.32	39.7
North: CR-225												
7	L2	96	7.0	0.438	16.2	LOS B	2.4	62.9	0.83	0.96	0.97	33.4
4	T1	46	7.0	0.438	10.2	LOS B	2.4	62.9	0.83	0.96	0.97	30.2
14	R2	512	7.0	0.438	3.1	LOS A	2.4	62.9	0.07	0.39	0.08	33.5
Approach		653	7.0	0.438	5.5	LOS A	2.4	62.9	0.23	0.51	0.27	33.2
West: US-160												
5	L2	384	0.0	0.366	14.4	LOS B	2.8	70.2	0.46	0.66	0.46	37.2
2	T1	476	12.0	0.366	8.5	LOS A	2.8	70.2	0.46	0.57	0.46	43.2
12	R2	38	4.0	0.366	7.6	LOS A	2.8	75.5	0.46	0.56	0.46	37.3
Approach		898	6.5	0.366	11.0	LOS B	2.8	75.5	0.46	0.61	0.46	40.1
All Vehicles		3008	4.5	0.730	12.1	LOS B	8.4	214.7	0.60	0.79	0.79	37.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

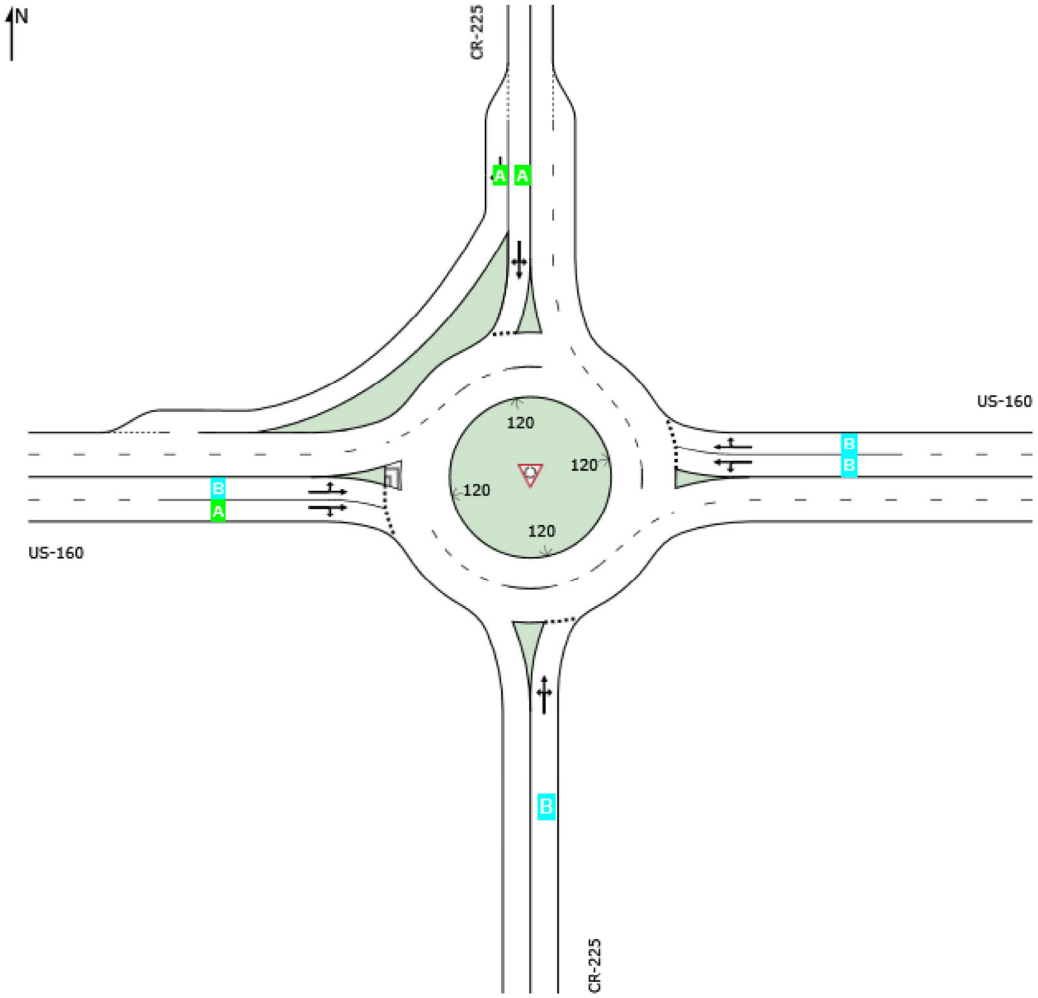
LANE LEVEL OF SERVICE

Lane Level of Service

Site: 101 [2040 Build PM]

New Site
Site Category: (None)
Roundabout

	Approaches				Intersection
	South	East	North	West	
LOS	B	B	A	B	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

MOVEMENT SUMMARY

Site: 101 [2040 Build PM]

New Site
Site Category: (None)
Roundabout

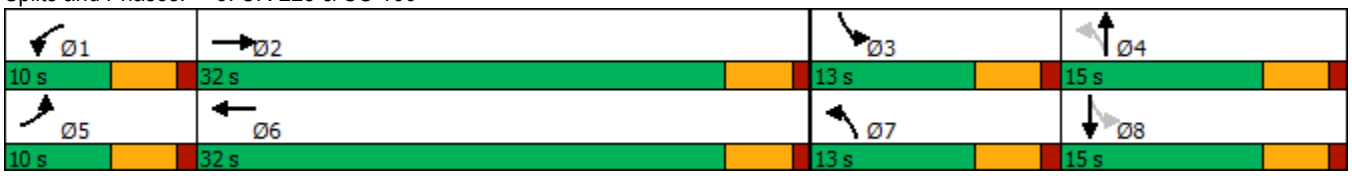
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed mph
South: CR-225												
3	L2	75	2.0	0.547	20.3	LOS C	2.6	69.7	0.89	1.02	1.14	31.7
8	T1	63	11.0	0.547	15.5	LOS B	2.6	69.7	0.89	1.02	1.14	28.4
18	R2	10	17.0	0.547	16.5	LOS B	2.6	69.7	0.89	1.02	1.14	29.7
Approach		148	6.8	0.547	18.0	LOS B	2.6	69.7	0.89	1.02	1.14	30.1
East: US-160												
1	L2	13	13.0	0.629	23.7	LOS C	5.7	150.5	0.91	1.04	1.21	35.3
6	T1	664	8.0	0.629	16.7	LOS B	5.8	156.2	0.91	1.04	1.21	39.4
16	R2	96	13.0	0.629	16.2	LOS B	5.8	156.2	0.92	1.04	1.20	33.9
Approach		773	8.7	0.629	16.8	LOS B	5.8	156.2	0.91	1.04	1.21	38.5
North: CR-225												
7	L2	109	6.0	0.386	12.9	LOS B	2.0	52.1	0.73	0.86	0.78	35.3
4	T1	59	6.0	0.386	6.4	LOS A	2.0	52.1	0.73	0.86	0.78	31.7
14	R2	479	6.0	0.386	3.1	LOS A	2.0	52.1	0.09	0.40	0.10	33.5
Approach		647	6.0	0.386	5.0	LOS A	2.0	52.1	0.26	0.52	0.28	33.6
West: US-160												
5	L2	547	7.0	0.770	17.4	LOS B	11.0	287.0	0.85	0.73	0.91	36.6
2	T1	1137	3.0	0.770	9.8	LOS A	11.0	287.0	0.82	0.67	0.86	43.1
12	R2	184	1.0	0.770	8.9	LOS A	10.6	270.9	0.80	0.65	0.84	36.5
Approach		1867	4.0	0.770	11.9	LOS B	11.0	287.0	0.82	0.69	0.87	40.3
All Vehicles		3435	5.5	0.770	12.0	LOS B	11.0	287.0	0.74	0.75	0.85	37.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	438	35	3	994	20	195	11	20	23	3	132
Future Volume (vph)	34	438	35	3	994	20	195	11	20	23	3	132
Turn Type	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free	4		Free	8		Free
Detector Phase	5	2		1	6		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	10.0	32.0		10.0	32.0		13.0	15.0		13.0	15.0	
Total Split (%)	14.3%	45.7%		14.3%	45.7%		18.6%	21.4%		18.6%	21.4%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	5.6	30.0	50.9	5.6	28.2	50.9	9.5	8.2	50.9	7.4	5.9	50.9
Actuated g/C Ratio	0.11	0.59	1.00	0.11	0.55	1.00	0.19	0.16	1.00	0.15	0.12	1.00
v/c Ratio	0.19	0.25	0.02	0.02	0.55	0.01	0.65	0.04	0.01	0.11	0.02	0.09
Control Delay	26.8	7.1	0.0	25.3	10.6	0.0	29.8	23.2	0.0	19.8	25.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	7.1	0.0	25.3	10.6	0.0	29.8	23.2	0.0	19.8	25.0	0.1
LOS	C	A	A	C	B	A	C	C	A	B	C	A
Approach Delay		7.9			10.5			26.9			3.4	
Approach LOS		A			B			C			A	

Intersection Summary	
Cycle Length: 70	
Actuated Cycle Length: 50.9	
Natural Cycle: 70	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 11.1	Intersection LOS: B
Intersection Capacity Utilization 53.2%	ICU Level of Service A
Analysis Period (min) 15	

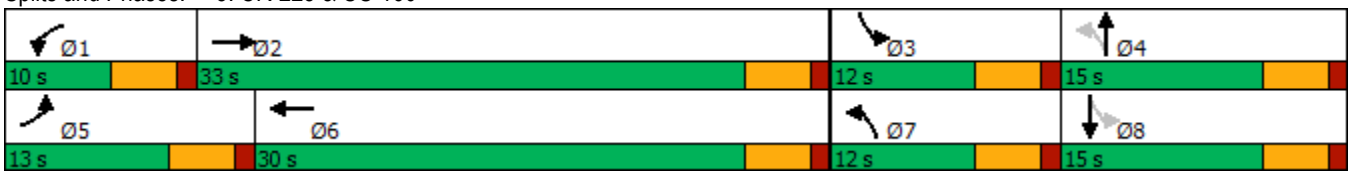
Splits and Phases: 3: CR-225 & US-160



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1046	169	12	611	12	69	14	9	26	11	60
Future Volume (vph)	112	1046	169	12	611	12	69	14	9	26	11	60
Turn Type	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free	4		Free	8		Free
Detector Phase	5	2		1	6		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	22.5		9.5	22.5	
Total Split (s)	13.0	33.0		10.0	30.0		12.0	15.0		12.0	15.0	
Total Split (%)	18.6%	47.1%		14.3%	42.9%		17.1%	21.4%		17.1%	21.4%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	8.1	40.9	53.5	5.6	31.1	53.5	8.2	6.7	53.5	7.6	6.1	53.5
Actuated g/C Ratio	0.15	0.76	1.00	0.10	0.58	1.00	0.15	0.13	1.00	0.14	0.11	1.00
v/c Ratio	0.48	0.42	0.12	0.08	0.34	0.01	0.27	0.07	0.01	0.11	0.06	0.04
Control Delay	30.7	7.0	0.1	26.9	10.5	0.0	22.3	24.9	0.0	20.7	25.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	7.0	0.1	26.9	10.5	0.0	22.3	24.9	0.0	20.7	25.3	0.1
LOS	C	A	A	C	B	A	C	C	A	C	C	A
Approach Delay		8.1			10.6			20.4			8.4	
Approach LOS		A			B			C			A	

Intersection Summary		
Cycle Length: 70		
Actuated Cycle Length: 53.5		
Natural Cycle: 70		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.48		
Intersection Signal Delay: 9.4	Intersection LOS: A	
Intersection Capacity Utilization 54.8%	ICU Level of Service A	
Analysis Period (min) 15		

Splits and Phases: 3: CR-225 & US-160



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	353	438	35	3	994	81	195	47	20	88	42	471
Future Volume (vph)	353	438	35	3	994	81	195	47	20	88	42	471
Turn Type	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free	4		Free	8		Free
Detector Phase	5	2		1	6		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	15.0		9.5	15.0	
Total Split (s)	17.0	39.0		10.0	32.0		11.0	15.0		11.0	15.0	
Total Split (%)	22.7%	52.0%		13.3%	42.7%		14.7%	20.0%		14.7%	20.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	11.3	42.0	66.6	5.6	27.9	66.6	11.2	7.6	66.6	11.0	7.3	66.6
Actuated g/C Ratio	0.17	0.63	1.00	0.08	0.42	1.00	0.17	0.11	1.00	0.17	0.11	1.00
v/c Ratio	0.65	0.23	0.02	0.02	0.73	0.06	0.81	0.24	0.01	0.36	0.24	0.34
Control Delay	32.5	7.6	0.0	32.0	21.6	0.1	49.1	31.8	0.0	25.5	32.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	7.6	0.0	32.0	21.6	0.1	49.1	31.8	0.0	25.5	32.1	0.6
LOS	C	A	A	C	C	A	D	C	A	C	C	A
Approach Delay		17.9			20.0			42.2			6.5	
Approach LOS		B			B			D			A	

Intersection Summary		
Cycle Length: 75		
Actuated Cycle Length: 66.6		
Natural Cycle: 70		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.81		
Intersection Signal Delay: 18.5	Intersection LOS: B	
Intersection Capacity Utilization 66.3%	ICU Level of Service C	
Analysis Period (min) 15		

Splits and Phases: 3: CR-225 & US-160

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	503	1046	169	12	611	88	69	58	9	100	54	441
Future Volume (vph)	503	1046	169	12	611	88	69	58	9	100	54	441
Turn Type	Prot	NA	Free	Prot	NA	Free	pm+pt	NA	Free	pm+pt	NA	Free
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			Free			Free	4		Free	8		Free
Detector Phase	5	2		1	6		7	4		3	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	9.5	22.5		9.5	22.5		9.5	10.0		9.5	10.0	
Total Split (s)	20.0	37.0		10.0	27.0		13.0	15.0		13.0	15.0	
Total Split (%)	26.7%	49.3%		13.3%	36.0%		17.3%	20.0%		17.3%	20.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Max		None	Max		None	None		None	None	
Act Effct Green (s)	14.2	42.3	64.0	5.8	23.7	64.0	12.3	8.0	64.0	12.9	8.4	64.0
Actuated g/C Ratio	0.22	0.66	1.00	0.09	0.37	1.00	0.19	0.12	1.00	0.20	0.13	1.00
v/c Ratio	0.76	0.49	0.12	0.09	0.54	0.07	0.23	0.30	0.01	0.37	0.25	0.31
Control Delay	33.5	10.8	0.1	33.8	21.2	0.1	21.4	32.7	0.0	23.8	31.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	10.8	0.1	33.8	21.2	0.1	21.4	32.7	0.0	23.8	31.4	0.5
LOS	C	B	A	C	C	A	C	C	A	C	C	A
Approach Delay		16.4			18.8			24.8			7.3	
Approach LOS		B			B			C			A	

Intersection Summary		
Cycle Length: 75		
Actuated Cycle Length: 64		
Natural Cycle: 60		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.76		
Intersection Signal Delay: 15.6	Intersection LOS: B	
Intersection Capacity Utilization 56.5%	ICU Level of Service B	
Analysis Period (min) 15		

Splits and Phases: 3: CR-225 & US-160