

Appendix D

Capacity Analyses Reports

Appendix D-1

Existing Year (2011) Synchro Reports

Existing Level of Service Summary

Intersection #	Intersection	Intersection Control	Approach	Geometry	2011 AM			2011 PM		
					Delay (Seconds)	LOS	V/C*	Delay (Seconds)	LOS	V/C*
1	SR 235 & US 40**	Signal	Eastbound	L, TR	11.6	B	0.26	18.9	B	0.47
			Westbound	L, TR	11.8	B	0.29	18.6	B	0.39
			Northbound	L, T, R	8.4	A	0.23	9.5	A	0.60
			Southbound	L, TR	14.4	B	0.72	9.3	A	0.46
			Intersection		12.3	B	0.54	12.0	B	0.47
2	SR 235 & Dille Rd	Dille under Stop Control	Westbound	LR	11.4	B	0.06	13.6	B	0.09
			Northbound	T, R	NA	NA	NA	NA	NA	NA
			Southbound	L, T	7.6 [L]	A	0.32	9.0 [L]	A	0.24
3	SR 235 & Hartley Ave	Hartley under Stop Control	Eastbound	LTR	12.8	B	0.06	15.8	C	0.13
			Westbound	LTR	12.6	B	0.04	14.4	B	0.05
			Northbound	L, TR	8.6 [L]	A	0.10	8.4 [L]	A	0.39
			Southbound	L, TR	7.6 [L]	A	0.33	9.0 [L]	A	0.28
4	SR 235 & Dale Ridge Rd	Dale Ridge under Stop Control	Westbound	LR	11.3	B	0.04	13.7	B	0.03
			Northbound	TR	NA	NA	NA	NA	NA	NA
			Southbound	L, T	7.7 [L]	A	0.37	9.5 [L]	A	0.27
5	SR 235 & Styer Rd	Signal	Eastbound	LTR	15.3	B	0.01	25.6	C	0.19
			Westbound	L, TR	16.6	B	0.31	28.6	C	0.56
			Northbound	L, TR	7.0	A	0.21	13.5	B	0.73
			Southbound	L, TR	12.0	B	0.72	6.8	A	0.44
			Intersection		11.7	B	0.59	13.2	B	0.75
6	Styer Rd & McAdams Dr	McAdams under Stop Control	Eastbound	LTR	0.0	A	0.00	0.1	A	0.00
			Westbound	L, TR	7.3 [L]	A	0.08	7.8 [L]	A	0.09
			Northbound	LTR	9.8	A	0.00	11.2	B	0.09
			Southbound	LTR	9.0	A	0.00	11.0	B	0.01
7	SR 235 & Hocker Rd	Hocker under Stop Control	Westbound	LR	12.1	B	0.05	15.1	C	0.10
			Northbound	TR	NA	NA	NA	NA	NA	NA
			Southbound	L, T	7.7 [L]	A	0.40	9.5 [L]	A	0.24
8	SR 235 & Dalton Dr	Dalton under Stop Control	Westbound	LR	11.4	B	0.03	14.9	B	0.11
			Northbound	TR	NA	NA	NA	NA	NA	NA
			Southbound	L, T	7.7 [L]	A	0.38	9.3 [L]	A	0.25
9	SR 235 & Gerlaugh Rd	Signal	Eastbound	LTR	17.4	B	0.31	26.8	C	0.58
			Westbound	L, TR	18.6	B	0.51	25.2	C	0.53
			Northbound	L, T, R	10.3	B	0.24	11.1	B	0.69
			Southbound	L, TR	19.0	B	0.81	8.4	A	0.37
			Intersection		17.2	B	0.62	13.5	B	0.61

LTR - Left/Through/Right; LT - Left/Through; TR - Through/Right; LR - Left/Right; T - Through; R - Right; L - Left

*Highest V/C

** The capacity analyses are based on the improved lane configurations on US 40 as implemented by ODOT in 2012

HCM Signalized Intersection Capacity Analysis

1: US 40 & SR 235

2011 AM

SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	42	44	74	60	19	20	130	33	9	364	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.92		1.00	0.96		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1720		1770	1796		1770	1863	1583	1770	1838	
Flt Permitted	0.70	1.00		0.69	1.00		0.39	1.00	1.00	0.67	1.00	
Satd. Flow (perm)	1304	1720		1294	1796		728	1863	1583	1239	1838	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	31	47	49	82	67	21	22	144	37	10	404	40
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	31	96	0	82	88	0	22	144	37	10	444	0
Turn Type	Perm		Perm		pm+pt		Perm		pm+pt			
Protected Phases	4		8		5		2		1		6	
Permitted Phases	4		8		2		2		6			
Actuated Green, G (s)	7.6	7.6	7.6	7.6	12.5	11.7	11.7	12.5	11.7	12.5	11.7	
Effective Green, g (s)	7.6	7.6	7.6	7.6	12.5	11.7	11.7	12.5	11.7	12.5	11.7	
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.36	0.33	0.33	0.36	0.33	0.36	0.33	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	282	372		280	389		283	621	528	453	613	
v/s Ratio Prot		0.06			0.05		c0.00	0.08		0.00	c0.24	
v/s Ratio Perm	0.02			c0.06			0.03		0.02	0.01		
v/c Ratio	0.11	0.26		0.29	0.23		0.08	0.23	0.07	0.02	0.72	
Uniform Delay, d1	11.0	11.4		11.5	11.3		7.5	8.5	8.0	7.3	10.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	0.4		0.6	0.3		0.1	0.2	0.1	0.0	4.2	
Delay (s)	11.2	11.8		12.1	11.6		7.6	8.6	8.0	7.3	14.5	
Level of Service	B	B		B	B		A	A	A	A	B	
Approach Delay (s)		11.6			11.8			8.4			14.4	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	12.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	35.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	40.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
1: US 40 & SR 235

2011 AM
SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	53	25	13	52	25
Maximum Split (%)	13.3%	58.9%	27.8%	14.4%	57.8%	27.8%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	65	0	13	65
End Time (s)	12	65	0	13	65	0
Yield/Force Off (s)	7	60	85	8	60	85
Yield/Force Off 170(s)	7	49	74	8	49	74
Local Start Time (s)	77	89	52	77	0	52
Local Yield (s)	84	47	72	85	47	72
Local Yield 170(s)	84	36	61	85	36	61

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	55

Splits and Phases: 1: US 40 & SR 235



HCM Unsignalized Intersection Capacity Analysis
 2: Dille Rd & SR 235

2011 AM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶		↑	↷	↶	↑
Volume (veh/h)	25	8	153	15	6	483
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	9	170	17	7	537
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	720	170			187	
vC1, stage 1 conf vol	170					
vC2, stage 2 conf vol	550					
vCu, unblocked vol	720	170			187	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			100	
cM capacity (veh/h)	544	874			1388	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	37	170	17	7	537
Volume Left	28	0	0	7	0
Volume Right	9	0	17	0	0
cSH	599	1700	1700	1388	1700
Volume to Capacity	0.06	0.10	0.01	0.00	0.32
Queue Length 95th (ft)	5	0	0	0	0
Control Delay (s)	11.4	0.0	0.0	7.6	0.0
Lane LOS	B			A	
Approach Delay (s)	11.4	0.0		0.1	
Approach LOS	B				

Intersection Summary					
Average Delay			0.6		
Intersection Capacity Utilization		35.4%		ICU Level of Service	A
Analysis Period (min)		15			

HCM Unsignalized Intersection Capacity Analysis
 3: Hartley Ave & SR 235

2011 AM
 SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↘		↗	↘	
Volume (veh/h)	16	4	7	11	6	3	13	154	2	4	482	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	18	4	8	12	7	3	14	171	2	4	536	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							TWLT			TWLT		
Median storage (veh)							2			2		
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	764	759	548	756	771	172	561			173		
vC1, stage 1 conf vol	557	557		201	201							
vC2, stage 2 conf vol	207	202		554	570							
vCu, unblocked vol	764	759	548	756	771	172	561			173		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	99	99	97	99	100	99			100		
cM capacity (veh/h)	478	476	536	461	460	871	1010			1403		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	30	22	14	173	4	561
Volume Left	18	12	14	0	4	0
Volume Right	8	3	0	2	0	26
cSH	491	496	1010	1700	1403	1700
Volume to Capacity	0.06	0.04	0.01	0.10	0.00	0.33
Queue Length 95th (ft)	5	4	1	0	0	0
Control Delay (s)	12.8	12.6	8.6	0.0	7.6	0.0
Lane LOS	B	B	A		A	
Approach Delay (s)	12.8	12.6	0.7		0.1	
Approach LOS	B	B				

Intersection Summary		
Average Delay		1.0
Intersection Capacity Utilization	36.8%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Unsignalized Intersection Capacity Analysis
4: Daleridge Rd & SR 235

2011 AM
SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	10	191	3	2	571
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	14	11	212	3	2	634
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage veh			2		2	
Upstream signal (ft)			693			
pX, platoon unblocked						
vC, conflicting volume	853	214			216	
vC1, stage 1 conf vol	214					
vC2, stage 2 conf vol	639					
vCu, unblocked vol	853	214			216	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			100	
cM capacity (veh/h)	493	826			1354	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	26	216	2	634
Volume Left	14	0	2	0
Volume Right	11	3	0	0
cSH	598	1700	1354	1700
Volume to Capacity	0.04	0.13	0.00	0.37
Queue Length 95th (ft)	3	0	0	0
Control Delay (s)	11.3	0.0	7.7	0.0
Lane LOS	B		A	
Approach Delay (s)	11.3	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization	40.1%		ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis

5: Styer Rd & SR 235

2011 AM
SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗		↖	↗		↖	↗	
Volume (vph)	1	0	1	69	2	55	4	149	15	26	564	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.93		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695		1770	1592		1770	1837		1770	1861	
Flt Permitted		0.87		0.76	1.00		0.27	1.00		0.64	1.00	
Satd. Flow (perm)		1510		1409	1592		502	1837		1196	1861	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	0	1	77	2	61	4	166	17	29	627	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2	0	77	63	0	4	183	0	29	631	0
Turn Type	Perm		Perm		pm+pt		pm+pt					
Protected Phases		4			8		5	2		1		6
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		7.9		7.9	7.9		22.1	21.3		22.1	21.3	
Effective Green, g (s)		7.9		7.9	7.9		22.1	21.3		22.1	21.3	
Actuated g/C Ratio		0.18		0.18	0.18		0.49	0.47		0.49	0.47	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		265		247	279		269	870		598	881	
v/s Ratio Prot					0.04		0.00	0.10		c0.00	c0.34	
v/s Ratio Perm		0.00		c0.05			0.01			0.02		
v/c Ratio		0.01		0.31	0.23		0.01	0.21		0.05	0.72	
Uniform Delay, d1		15.3		16.2	15.9		6.5	6.9		5.9	9.4	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0		0.7	0.4		0.0	0.1		0.0	2.8	
Delay (s)		15.3		16.9	16.3		6.5	7.1		6.0	12.2	
Level of Service		B		B	B		A	A		A	B	
Approach Delay (s)		15.3			16.6			7.0			12.0	
Approach LOS		B			B			A			B	

Intersection Summary

HCM Average Control Delay	11.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	45.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
5: Styer Rd & SR 235

2011 AM
SR 235, Clark County, Ohio

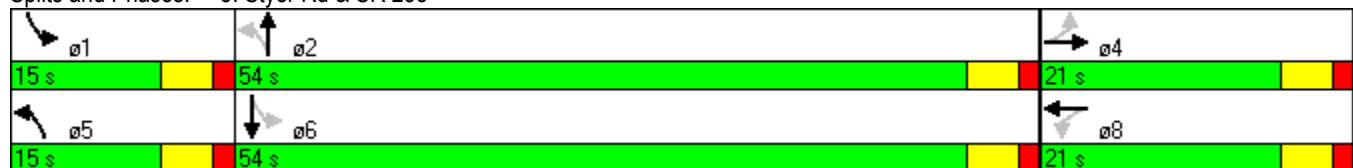


Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	15	54	21	15	54	21
Maximum Split (%)	16.7%	60.0%	23.3%	16.7%	60.0%	23.3%
Minimum Split (s)	15	21	21	15	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	69	0	15	69
End Time (s)	15	69	0	15	69	0
Yield/Force Off (s)	10	64	85	10	64	85
Yield/Force Off 170(s)	10	53	74	10	53	74
Local Start Time (s)	75	0	54	75	0	54
Local Yield (s)	85	49	70	85	49	70
Local Yield 170(s)	85	38	59	85	38	59

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 5: Styer Rd & SR 235



HCM Unsignalized Intersection Capacity Analysis
6: Styer Rd & McAdams

2011 AM
SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (veh/h)	0	38	3	9	124	0	1	0	0	0	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	42	3	10	138	0	1	0	0	0	0	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		70										
pX, platoon unblocked												
vC, conflicting volume	138			46			203	202	44	202	203	138
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	138			46			203	202	44	202	203	138
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	100	100	100
cM capacity (veh/h)	1446			1562			751	690	1026	753	689	911

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	46	10	138	1	1
Volume Left	0	10	0	1	0
Volume Right	3	0	0	0	1
cSH	1446	1562	1700	751	911
Volume to Capacity	0.00	0.01	0.08	0.00	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	7.3	0.0	9.8	9.0
Lane LOS		A		A	A
Approach Delay (s)	0.0	0.5		9.8	9.0
Approach LOS				A	A

Intersection Summary				
Average Delay			0.5	
Intersection Capacity Utilization		17.2%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
7: Hocker Ave & SR 235

2011 AM
SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	15	7	208	10	9	613
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	8	231	11	10	681
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage veh			2		2	
Upstream signal (ft)					1018	
pX, platoon unblocked	0.71					
vC, conflicting volume	938	237			242	
vC1, stage 1 conf vol	237					
vC2, stage 2 conf vol	701					
vCu, unblocked vol	713	237			242	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			99	
cM capacity (veh/h)	457	802			1324	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	24	242	10	681
Volume Left	17	0	10	0
Volume Right	8	11	0	0
cSH	530	1700	1324	1700
Volume to Capacity	0.05	0.14	0.01	0.40
Queue Length 95th (ft)	4	0	1	0
Control Delay (s)	12.1	0.0	7.7	0.0
Lane LOS	B		A	
Approach Delay (s)	12.1	0.0	0.1	
Approach LOS	B			

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization	42.3%		ICU Level of Service A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 8: Dalton Dr & SR 235

2011 AM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	7	207	6	17	584
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	8	230	7	19	649
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)					1178	
pX, platoon unblocked	0.75					
vC, conflicting volume	920	233			237	
vC1, stage 1 conf vol	233					
vC2, stage 2 conf vol	687					
vCu, unblocked vol	730	233			237	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			99	
cM capacity (veh/h)	461	806			1330	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	17	237	19	649
Volume Left	9	0	19	0
Volume Right	8	7	0	0
cSH	576	1700	1330	1700
Volume to Capacity	0.03	0.14	0.01	0.38
Queue Length 95th (ft)	2	0	1	0
Control Delay (s)	11.4	0.0	7.7	0.0
Lane LOS	B		A	
Approach Delay (s)	11.4	0.0	0.2	
Approach LOS	B			

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		40.7%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
9: Gerlaugh Rd & SR 235

2011 AM
SR 235, Clark County, Ohio



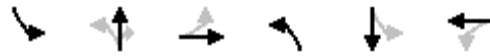
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗		↖	↑	↗	↖	↗	
Volume (vph)	15	15	88	169	14	34	11	177	28	26	616	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.90		1.00	0.89		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1665		1770	1666		1770	1863	1583	1770	1859	
Flt Permitted		0.96		0.74	1.00		0.19	1.00	1.00	0.61	1.00	
Satd. Flow (perm)		1616		1380	1666		352	1863	1583	1128	1859	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	17	98	188	16	38	12	197	31	29	684	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	132	0	188	54	0	12	197	31	29	694	0
Turn Type	Perm		Perm		pm+pt		Perm		pm+pt			
Protected Phases		4		8	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		15.5		15.5	15.5		26.4	25.5	25.5	28.8	26.7	
Effective Green, g (s)		15.5		15.5	15.5		26.4	25.5	25.5	28.8	26.7	
Actuated g/C Ratio		0.27		0.27	0.27		0.45	0.44	0.44	0.50	0.46	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		431		368	444		182	818	695	582	854	
v/s Ratio Prot					0.03		0.00	0.11		c0.00	c0.37	
v/s Ratio Perm		0.08		c0.14			0.03		0.02	0.02		
v/c Ratio		0.31		0.51	0.12		0.07	0.24	0.04	0.05	0.81	
Uniform Delay, d1		17.0		18.1	16.1		10.3	10.2	9.3	7.5	13.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.4		1.2	0.1		0.2	0.2	0.0	0.0	5.9	
Delay (s)		17.4		19.3	16.3		10.5	10.4	9.4	7.6	19.5	
Level of Service		B		B	B		B	B	A	A	B	
Approach Delay (s)		17.4			18.6			10.3			19.0	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	58.1	Sum of lost time (s)	10.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
9: Gerlaugh Rd & SR 235

2011 AM
SR 235, Clark County, Ohio

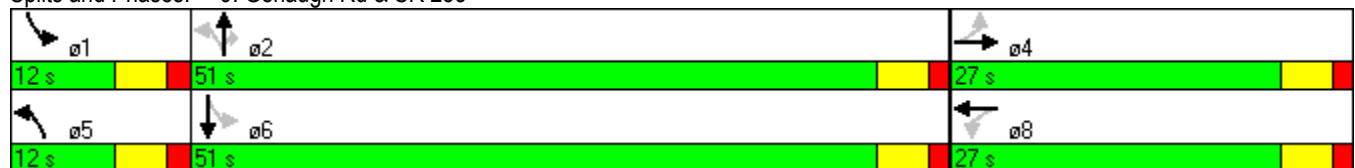


Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	51	27	12	51	27
Maximum Split (%)	13.3%	56.7%	30.0%	13.3%	56.7%	30.0%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	63	0	12	63
End Time (s)	12	63	0	12	63	0
Yield/Force Off (s)	7	58	85	7	58	85
Yield/Force Off 170(s)	7	47	74	7	47	74
Local Start Time (s)	78	0	51	78	0	51
Local Yield (s)	85	46	73	85	46	73
Local Yield 170(s)	85	35	62	85	35	62

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 9: Gerlaugh Rd & SR 235



HCM Signalized Intersection Capacity Analysis

1: US 40 & SR 235

2011 PM
SR 235, Clark County, Ohio



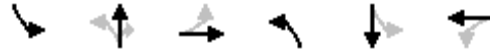
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	66	81	48	76	86	21	63	480	80	39	292	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.94		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1759		1770	1809		1770	1863	1583	1770	1826	
Flt Permitted	0.68	1.00		0.67	1.00		0.46	1.00	1.00	0.37	1.00	
Satd. Flow (perm)	1268	1759		1240	1809		863	1863	1583	693	1826	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	90	53	84	96	23	70	533	89	43	324	49
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	73	143	0	84	119	0	70	533	89	43	373	0
Turn Type	Perm		Perm		pm+pt		Perm		pm+pt			
Protected Phases	4		8		5		2		1		6	
Permitted Phases	4		8		2		2		6			
Actuated Green, G (s)	8.3	8.3	8.3	8.3	26.2	22.9	22.9	23.6	21.6			
Effective Green, g (s)	8.3	8.3	8.3	8.3	26.2	22.9	22.9	23.6	21.6			
Actuated g/C Ratio	0.17	0.17	0.17	0.17	0.54	0.48	0.48	0.49	0.45			
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	218	303	214	312	531	885	752	384	818			
v/s Ratio Prot	c0.08		0.07		c0.01	c0.29	0.00		0.20			
v/s Ratio Perm	0.06		0.07		0.06		0.06		0.05			
v/c Ratio	0.33	0.47	0.39	0.38	0.13	0.60	0.12	0.11	0.46			
Uniform Delay, d1	17.5	18.0	17.7	17.7	5.3	9.3	7.0	6.6	9.2			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.9	1.2	1.2	0.8	0.1	1.2	0.1	0.1	0.4			
Delay (s)	18.4	19.1	18.9	18.5	5.5	10.5	7.1	6.8	9.6			
Level of Service	B	B	B	B	A	B	A	A	A			
Approach Delay (s)	18.9		18.6		9.5		9.3					
Approach LOS	B		B		A		A					

Intersection Summary

HCM Average Control Delay	12.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	48.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
1: US 40 & SR 235

2011 PM
SR 235, Clark County, Ohio

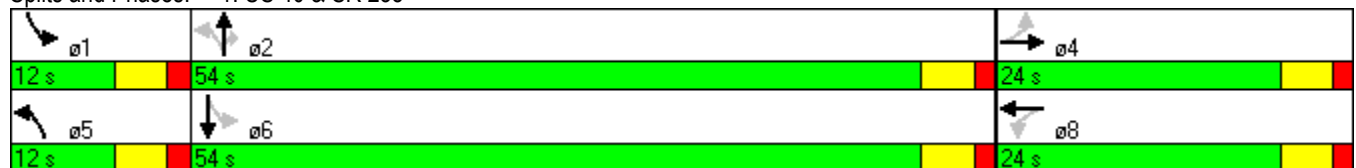


Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	54	24	12	54	24
Maximum Split (%)	13.3%	60.0%	26.7%	13.3%	60.0%	26.7%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	66	0	12	66
End Time (s)	12	66	0	12	66	0
Yield/Force Off (s)	7	61	85	7	61	85
Yield/Force Off 170(s)	7	50	74	7	50	74
Local Start Time (s)	78	0	54	78	0	54
Local Yield (s)	85	49	73	85	49	73
Local Yield 170(s)	85	38	62	85	38	62

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 1: US 40 & SR 235



HCM Unsignalized Intersection Capacity Analysis
 2: Dille Rd & SR 235

2011 PM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↗	↖	↓
Volume (veh/h)	27	12	562	39	16	373
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	13	624	43	18	414
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1074	624			668	
vC1, stage 1 conf vol	624					
vC2, stage 2 conf vol	450					
vCu, unblocked vol	1074	624			668	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	97			98	
cM capacity (veh/h)	451	485			922	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	43	624	43	18	414
Volume Left	30	0	0	18	0
Volume Right	13	0	43	0	0
cSH	461	1700	1700	922	1700
Volume to Capacity	0.09	0.37	0.03	0.02	0.24
Queue Length 95th (ft)	8	0	0	1	0
Control Delay (s)	13.6	0.0	0.0	9.0	0.0
Lane LOS	B			A	
Approach Delay (s)	13.6	0.0		0.4	
Approach LOS	B				

Intersection Summary					
Average Delay			0.7		
Intersection Capacity Utilization		39.6%		ICU Level of Service	A
Analysis Period (min)		15			

HCM Unsignalized Intersection Capacity Analysis
 3: Hartley Ave & SR 235

2011 PM
 SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↘		↗	↘	
Volume (veh/h)	27	6	12	5	4	10	16	577	20	16	424	12
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	7	13	6	4	11	18	641	22	18	471	13
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							TWLTL			TWLTL		
Median storage veh							2			2		
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1203	1212	478	1211	1208	652	484			663		
vC1, stage 1 conf vol	513	513		688	688							
vC2, stage 2 conf vol	690	699		523	520							
vCu, unblocked vol	1203	1212	478	1211	1208	652	484			663		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	98	98	98	99	98	98			98		
cM capacity (veh/h)	339	355	588	345	362	468	1078			925		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	50	21	18	663	18	484
Volume Left	30	6	18	0	18	0
Volume Right	13	11	0	22	0	13
cSH	385	405	1078	1700	925	1700
Volume to Capacity	0.13	0.05	0.02	0.39	0.02	0.28
Queue Length 95th (ft)	11	4	1	0	1	0
Control Delay (s)	15.8	14.4	8.4	0.0	9.0	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	15.8	14.4	0.2		0.3	
Approach LOS	C	B				

Intersection Summary		
Average Delay		1.1
Intersection Capacity Utilization	43.5%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Unsignalized Intersection Capacity Analysis
 4: Daleridge Rd & SR 235

2011 PM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	5	5	644	18	13	409
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	6	716	20	14	454
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)			693			
pX, platoon unblocked	0.70	0.70			0.70	
vC, conflicting volume	1209	726			736	
vC1, stage 1 conf vol	726					
vC2, stage 2 conf vol	483					
vCu, unblocked vol	1087	401			415	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			98	
cM capacity (veh/h)	397	457			806	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	11	736	14	454
Volume Left	6	0	14	0
Volume Right	6	20	0	0
cSH	425	1700	806	1700
Volume to Capacity	0.03	0.43	0.02	0.27
Queue Length 95th (ft)	2	0	1	0
Control Delay (s)	13.7	0.0	9.5	0.0
Lane LOS	B		A	
Approach Delay (s)	13.7	0.0	0.3	
Approach LOS	B			

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization	45.0%		ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
5: Styer Rd & SR 235

2011 PM
SR 235, Clark County, Ohio



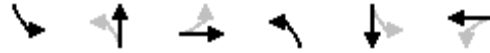
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↖	↗		↖	↗		↖	↗	
Volume (vph)	13	11	10	56	15	89	19	569	92	154	317	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.96		1.00	0.87		1.00	0.98		1.00	0.99	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755		1770	1624		1770	1824		1770	1852	
Flt Permitted		0.84		0.73	1.00		0.54	1.00		0.20	1.00	
Satd. Flow (perm)		1507		1365	1624		1012	1824		378	1852	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	14	12	11	62	17	99	21	632	102	171	352	14
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	37	0	62	116	0	21	734	0	171	366	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.3		8.3	8.3		37.6	35.5		44.8	39.1	
Effective Green, g (s)		8.3		8.3	8.3		37.6	35.5		44.8	39.1	
Actuated g/C Ratio		0.13		0.13	0.13		0.58	0.55		0.69	0.61	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		194		176	209		615	1004		386	1123	
v/s Ratio Prot					c0.07		0.00	c0.40		c0.04	0.20	
v/s Ratio Perm		0.02		0.05			0.02			0.27		
v/c Ratio		0.19		0.35	0.56		0.03	0.73		0.44	0.33	
Uniform Delay, d1		25.1		25.6	26.4		5.7	10.9		6.8	6.2	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.5		1.2	3.2		0.0	2.8		0.8	0.2	
Delay (s)		25.6		26.9	29.5		5.7	13.7		7.6	6.4	
Level of Service		C		C	C		A	B		A	A	
Approach Delay (s)		25.6			28.6			13.5			6.8	
Approach LOS		C			C			B			A	

Intersection Summary

HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
5: Styer Rd & SR 235

2011 PM
SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	15	54	21	15	54	21
Maximum Split (%)	16.7%	60.0%	23.3%	16.7%	60.0%	23.3%
Minimum Split (s)	15	21	21	15	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	69	0	15	69
End Time (s)	15	69	0	15	69	0
Yield/Force Off (s)	10	64	85	10	64	85
Yield/Force Off 170(s)	10	53	74	10	53	74
Local Start Time (s)	75	0	54	75	0	54
Local Yield (s)	85	49	70	85	49	70
Local Yield 170(s)	85	38	59	85	38	59

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	70

Splits and Phases: 5: Styer Rd & SR 235



HCM Unsignalized Intersection Capacity Analysis
6: Styer Rd & McAdams

2011 PM
SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (veh/h)	3	231	23	16	137	0	20	2	33	3	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	257	26	18	152	0	22	2	37	3	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		70										
pX, platoon unblocked				0.96			0.96	0.96	0.96	0.96	0.96	
vC, conflicting volume	152			282			467	464	269	502	477	152
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	152			235			427	424	222	463	437	152
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			96	100	95	99	100	100
cM capacity (veh/h)	1429			1283			509	494	787	460	486	894

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	286	18	152	61	7
Volume Left	3	18	0	22	3
Volume Right	26	0	0	37	3
cSH	1429	1283	1700	645	607
Volume to Capacity	0.00	0.01	0.09	0.09	0.01
Queue Length 95th (ft)	0	1	0	8	1
Control Delay (s)	0.1	7.8	0.0	11.2	11.0
Lane LOS	A	A		B	B
Approach Delay (s)	0.1	0.8		11.2	11.0
Approach LOS				B	B

Intersection Summary				
Average Delay			1.8	
Intersection Capacity Utilization		26.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
7: Hocker Ave & SR 235

2011 PM
SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	26	9	671	53	25	363
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	29	10	746	59	28	403
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage veh			2		2	
Upstream signal (ft)					1018	
pX, platoon unblocked	0.95					
vC, conflicting volume	1234	775			804	
vC1, stage 1 conf vol	775					
vC2, stage 2 conf vol	459					
vCu, unblocked vol	1221	775			804	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	97			97	
cM capacity (veh/h)	392	398			820	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	39	804	28	403
Volume Left	29	0	28	0
Volume Right	10	59	0	0
cSH	394	1700	820	1700
Volume to Capacity	0.10	0.47	0.03	0.24
Queue Length 95th (ft)	8	0	3	0
Control Delay (s)	15.1	0.0	9.5	0.0
Lane LOS	C		A	
Approach Delay (s)	15.1	0.0	0.6	
Approach LOS	C			

Intersection Summary				
Average Delay			0.7	
Intersection Capacity Utilization		48.5%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
 8: Dalton Dr & SR 235

2011 PM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	29	11	670	14	5	382
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	32	12	744	16	6	424
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)					1178	
pX, platoon unblocked	0.97					
vC, conflicting volume	1188	752			760	
vC1, stage 1 conf vol	752					
vC2, stage 2 conf vol	436					
vCu, unblocked vol	1179	752			760	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	97			99	
cM capacity (veh/h)	409	410			852	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	44	760	6	424
Volume Left	32	0	6	0
Volume Right	12	16	0	0
cSH	409	1700	852	1700
Volume to Capacity	0.11	0.45	0.01	0.25
Queue Length 95th (ft)	9	0	0	0
Control Delay (s)	14.9	0.0	9.3	0.0
Lane LOS	B		A	
Approach Delay (s)	14.9	0.0	0.1	
Approach LOS	B			

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		46.1%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
9: Gerlaugh Rd & SR 235

2011 PM
SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗		↖	↗	↖	↗	↖	↗
Volume (vph)	34	62	23	92	44	75	100	594	171	75	296	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Fr _t		0.97		1.00	0.91		1.00	1.00	0.85	1.00	0.99	
Fl _t Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1788		1770	1687		1770	1863	1583	1770	1845	
Fl _t Permitted		0.86		0.72	1.00		0.52	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		1555		1335	1687		960	1863	1583	475	1845	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	38	69	26	102	49	83	111	660	190	83	329	22
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	133	0	102	132	0	111	660	190	83	351	0
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		8.7		8.7	8.7		35.0	30.1	30.1	35.0	30.1	
Effective Green, g (s)		8.7		8.7	8.7		35.0	30.1	30.1	35.0	30.1	
Actuated g/C Ratio		0.15		0.15	0.15		0.60	0.51	0.51	0.60	0.51	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		230		198	250		640	955	812	391	946	
v/s Ratio Prot					0.08		0.01	c0.35		c0.02	0.19	
v/s Ratio Perm		c0.09		0.08			0.09		0.12	0.11		
v/c Ratio		0.58		0.52	0.53		0.17	0.69	0.23	0.21	0.37	
Uniform Delay, d ₁		23.3		23.1	23.1		5.1	10.8	7.9	6.3	8.6	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d ₂		3.5		2.3	2.0		0.1	2.2	0.1	0.3	0.2	
Delay (s)		26.8		25.3	25.1		5.3	13.0	8.1	6.6	8.9	
Level of Service		C		C	C		A	B	A	A	A	
Approach Delay (s)		26.8			25.2			11.1			8.4	
Approach LOS		C			C			B			A	

Intersection Summary

HCM Average Control Delay	13.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	58.7	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
9: Gerlaugh Rd & SR 235

2011 PM
SR 235, Clark County, Ohio

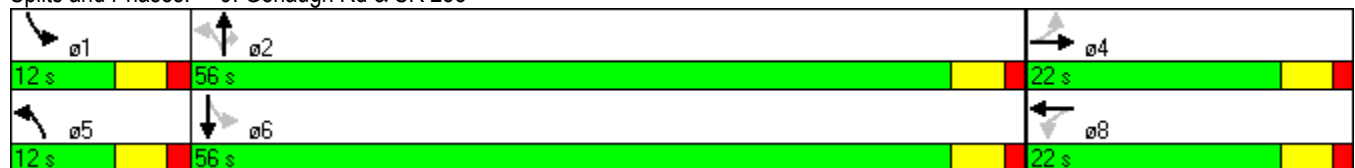


Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	56	22	12	56	22
Maximum Split (%)	13.3%	62.2%	24.4%	13.3%	62.2%	24.4%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	68	0	12	68
End Time (s)	12	68	0	12	68	0
Yield/Force Off (s)	7	63	85	7	63	85
Yield/Force Off 170(s)	7	52	74	7	52	74
Local Start Time (s)	78	0	56	78	0	56
Local Yield (s)	85	51	73	85	51	73
Local Yield 170(s)	85	40	62	85	40	62

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 9: Gerlaugh Rd & SR 235





Appendix D-2

Design Year (2035) Synchro Reports

2035 Level of Service Summary

Intersection #	Intersection	Intersection Control	Approach	Geometry	2035 AM			2035 PM		
					Delay (Seconds)	LOS	V/C*	Delay (Seconds)	LOS	V/C*
1	SR 235 & US 40**	Signal	Eastbound	L, TR	15.3	B	0.30	21.9	C	0.46
			Westbound	L, TR	16.2	B	0.48	29.2	C	0.78
			Northbound	L, T, R	11.0	B	0.36	23.4	C	0.84
			Southbound	L, TR	16.7	B	0.73	22.6	C	0.78
			Intersection		14.9	B	0.61	24.0	C	0.78
2	SR 235 & Dille Rd	Dille under Stop Control	Westbound	LR	13.3	B	0.09	18.9	C	0.16
			Northbound	T, R	NA	NA	NA	NA	NA	NA
			Southbound	L, T	8.1 [L]	A	0.41	10.2 [L]	B	0.43
3	SR 235 & Hartley Ave	Hartley under Stop Control	Eastbound	LTR	15.4	B	0.09	25.4	D	0.24
			Westbound	LTR	14.8	C	0.07	20.3	C	0.10
			Northbound	L, TR	9.2 [L]	A	0.21	9.6 [L]	A	0.57
			Southbound	L, TR	8.0 [L]	A	0.43	10.2 [L]	B	0.48
4	SR 235 & Dale Ridge Rd	Dale Ridge under Stop Control	Westbound	LR	13.0	B	0.07	20.9	C	0.06
			Northbound	TR	NA	NA	NA	NA	NA	NA
			Southbound	L, T	8.1 [L]	A	0.48	12.8 [L]	B	0.46
5	SR 235 & Styer Rd	Signal	Eastbound	LTR	18.2	B	0.01	34.0	C	0.19
			Westbound	L, TR	20.3	C	0.38	40.6	D	0.66
			Northbound	L, TR	7.9	A	0.37	36.4	D	0.96
			Southbound	L, TR	13.8	B	0.80	19.1	B	0.84
			Intersection		13.2	B	0.61	29.9	C	0.90
6	Styer Rd & McAdams Dr	McAdams under Stop Control	Eastbound	LTR	0.0	A	0.00	0.1	A	0.00
			Westbound	L, TR	7.4 [L]	A	0.10	8.0 [L]	A	0.12
			Northbound	LTR	10.2	B	0.00	12.2	B	0.12
			Southbound	LTR	9.2	A	0.00	12.0	B	0.01
7	SR 235 & Hocker Rd	Hocker under Stop Control	Westbound	LR	14.6	B	0.07	21.4	C	0.16
			Northbound	TR	NA	NA	NA	NA	NA	NA
			Southbound	L, T	8.2 [L]	A	0.48	11.0 [L]	B	0.41
8	SR 235 & Dalton Dr	Dalton under Stop Control	Westbound	LR	13.5	B	0.04	20.9	C	0.18
			Northbound	TR	NA	NA	NA	NA	NA	NA
			Southbound	L, T	8.2 [L]	A	0.49	10.5 [L]	B	0.42
9	SR 235 & Gerlaugh Rd	Signal	Eastbound	LTR	22.5	C	0.38	34.4	C	0.62
			Westbound	L, TR	27.2	C	0.68	32.1	C	0.57
			Northbound	L, T, R	11.9	B	0.37	18.5	B	0.87
			Southbound	L, TR	25.5	C	0.90	12.9	B	0.61
			Intersection		22.5	C	0.81	19.4	B	0.79

LTR - Left/Through/Right; LT - Left/Through; TR - Through/Right; LR - Left/Right; T - Through; R - Right; L - Left

*Highest V/C

** The capacity analyses are based on the improved lane configurations on US 40 as implemented by ODOT in 2012

Concept 3A	SR 235 & McAdams/ Hocker Rd	McAdams under Stop Control	Westbound	LR	15.7	C	0.14	28.7	D	0.37
			Northbound	TR	NA	NA	NA	NA	NA	NA
			Southbound	L, T	8.1	A	0.02	11.8	B	0.11

Supplemental analyses to verify realigned Hocker Avenue at McAdams Drive operates at acceptable LOS as a combined single access point at SR 235.

Volumes estimated based on available count information.

HCM Signalized Intersection Capacity Analysis

2035 AM

1: US 40 & SR 235

SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	86	49	150	112	32	22	240	96	23	432	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.95		1.00	0.97		1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1762		1770	1800		1770	1863	1583	1770	1833	
Flt Permitted	0.66	1.00		0.66	1.00		0.28	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	1221	1762		1232	1800		519	1863	1583	1079	1833	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	80	96	54	167	124	36	24	267	107	26	480	57
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	80	150	0	167	160	0	24	267	107	26	537	0
Turn Type	Perm			Perm			pm+pt			Perm	pm+pt	
Protected Phases		4			8		5	2			1	6
Permitted Phases	4			8			2		2		6	
Actuated Green, G (s)	15.0	15.0		15.0	15.0		23.3	21.4	21.4	23.3	21.4	
Effective Green, g (s)	15.0	15.0		15.0	15.0		23.3	21.4	21.4	23.3	21.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.44	0.40	0.40	0.44	0.40	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	344	496		347	507		271	748	636	496	736	
v/s Ratio Prot		0.09			0.09		c0.00	0.14		0.00	c0.29	
v/s Ratio Perm	0.07			c0.14			0.04		0.07	0.02		
v/c Ratio	0.23	0.30		0.48	0.32		0.09	0.36	0.17	0.05	0.73	
Uniform Delay, d1	14.7	15.0		15.9	15.1		9.3	11.1	10.2	8.6	13.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	0.3		1.1	0.4		0.1	0.3	0.1	0.0	3.6	
Delay (s)	15.1	15.4		17.0	15.5		9.4	11.4	10.4	8.6	17.1	
Level of Service	B	B		B	B		A	B	B	A	B	
Approach Delay (s)		15.3			16.2			11.0			16.7	
Approach LOS		B			B			B			B	

Intersection Summary

HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	53.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
1: US 40 & SR 235

2035 AM
SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	49	29	12	49	29
Maximum Split (%)	13.3%	54.4%	32.2%	13.3%	54.4%	32.2%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	61	0	12	61
End Time (s)	12	61	0	12	61	0
Yield/Force Off (s)	7	56	85	7	56	85
Yield/Force Off 170(s)	7	45	74	7	45	74
Local Start Time (s)	78	0	49	78	0	49
Local Yield (s)	85	44	73	85	44	73
Local Yield 170(s)	85	33	62	85	33	62

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	60

Splits and Phases: 1: US 40 & SR 235



HCM Unsignalized Intersection Capacity Analysis
 2: Dille Rd & SR 235

2035 AM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T	R	L	T
Volume (veh/h)	28	9	325	17	7	632
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	31	10	361	19	8	702
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1079	361			380	
vC1, stage 1 conf vol	361					
vC2, stage 2 conf vol	718					
vCu, unblocked vol	1079	361			380	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	99			99	
cM capacity (veh/h)	434	683			1178	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	41	361	19	8	702
Volume Left	31	0	0	8	0
Volume Right	10	0	19	0	0
cSH	476	1700	1700	1178	1700
Volume to Capacity	0.09	0.21	0.01	0.01	0.41
Queue Length 95th (ft)	7	0	0	0	0
Control Delay (s)	13.3	0.0	0.0	8.1	0.0
Lane LOS	B			A	
Approach Delay (s)	13.3	0.0		0.1	
Approach LOS	B				

Intersection Summary					
Average Delay			0.5		
Intersection Capacity Utilization		43.3%		ICU Level of Service	A
Analysis Period (min)		15			

HCM Unsignalized Intersection Capacity Analysis

3: Hartley Ave & SR 235

2035 AM
SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Volume (veh/h)	18	4	8	12	7	5	15	324	2	6	630	26
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	4	9	13	8	6	17	360	2	7	700	29
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							TWTL			TWTL		
Median storage (veh)							2			2		
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1131	1123	714	1119	1137	361	729			362		
vC1, stage 1 conf vol	728	728		394	394							
vC2, stage 2 conf vol	403	396		724	742							
vCu, unblocked vol	1131	1123	714	1119	1137	361	729			362		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	99	98	96	98	99	98			99		
cM capacity (veh/h)	363	377	431	349	363	683	875			1196		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	33	27	17	362	7	729
Volume Left	20	13	17	0	7	0
Volume Right	9	6	0	2	0	29
cSH	381	394	875	1700	1196	1700
Volume to Capacity	0.09	0.07	0.02	0.21	0.01	0.43
Queue Length 95th (ft)	7	5	1	0	0	0
Control Delay (s)	15.4	14.8	9.2	0.0	8.0	0.0
Lane LOS	C	B	A		A	
Approach Delay (s)	15.4	14.8	0.4		0.1	
Approach LOS	C	B				

Intersection Summary

Average Delay	0.9
Intersection Capacity Utilization	44.7%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis
 4: Daleridge Rd & SR 235

2035 AM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	15	13	364	3	3	729
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	14	404	3	3	810
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage veh			2		2	
Upstream signal (ft)			693			
pX, platoon unblocked	0.92	0.92			0.92	
vC, conflicting volume	1223	406			408	
vC1, stage 1 conf vol	406					
vC2, stage 2 conf vol	817					
vCu, unblocked vol	1197	306			308	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	98			100	
cM capacity (veh/h)	389	672			1148	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	31	408	3	810
Volume Left	17	0	3	0
Volume Right	14	3	0	0
cSH	484	1700	1148	1700
Volume to Capacity	0.06	0.24	0.00	0.48
Queue Length 95th (ft)	5	0	0	0
Control Delay (s)	13.0	0.0	8.1	0.0
Lane LOS	B		A	
Approach Delay (s)	13.0	0.0	0.0	
Approach LOS	B			

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		48.4%	ICU Level of Service A
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis
5: Styer Rd & SR 235

2035 AM
SR 235, Clark County, Ohio



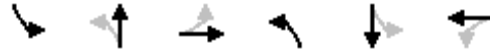
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↙	↘		↙	↘		↙	↘	
Volume (vph)	1	1	1	77	2	81	4	298	17	41	710	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.95		1.00	0.85		1.00	0.99		1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1750		1770	1589		1770	1848		1770	1861	
Flt Permitted		0.90		0.76	1.00		0.19	1.00		0.50	1.00	
Satd. Flow (perm)		1604		1408	1589		352	1848		937	1861	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1	1	1	86	2	90	4	331	19	46	789	4
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	3	0	86	92	0	4	350	0	46	793	0
Turn Type	Perm		Perm		pm+pt		pm+pt		pm+pt		pm+pt	
Protected Phases		4		8	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		8.2		8.2	8.2		26.9	26.1		29.5	27.4	
Effective Green, g (s)		8.2		8.2	8.2		26.9	26.1		29.5	27.4	
Actuated g/C Ratio		0.16		0.16	0.16		0.52	0.51		0.57	0.53	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		256		225	253		206	938		572	992	
v/s Ratio Prot					0.06		0.00	0.19		c0.00	c0.43	
v/s Ratio Perm		0.00		c0.06			0.01			0.04		
v/c Ratio		0.01		0.38	0.36		0.02	0.37		0.08	0.80	
Uniform Delay, d1		18.2		19.3	19.3		7.4	7.7		4.8	9.8	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.0		1.1	0.9		0.0	0.3		0.1	4.6	
Delay (s)		18.2		20.4	20.2		7.4	7.9		4.9	14.3	
Level of Service		B		C	C		A	A		A	B	
Approach Delay (s)		18.2			20.3			7.9			13.8	
Approach LOS		B			C			A			B	

Intersection Summary

HCM Average Control Delay	13.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	51.4	Sum of lost time (s)	10.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
5: Styer Rd & SR 235

2035 AM
SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	15	54	21	15	54	21
Maximum Split (%)	16.7%	60.0%	23.3%	16.7%	60.0%	23.3%
Minimum Split (s)	15	21	21	15	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	69	0	15	69
End Time (s)	15	69	0	15	69	0
Yield/Force Off (s)	10	64	85	10	64	85
Yield/Force Off 170(s)	10	53	74	10	53	74
Local Start Time (s)	75	0	54	75	0	54
Local Yield (s)	85	49	70	85	49	70
Local Yield 170(s)	85	38	59	85	38	59

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	75

Splits and Phases: 5: Styer Rd & SR 235



HCM Unsignalized Intersection Capacity Analysis
 6: Styer Rd & McAdams

2035 AM
 SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↑			↕			↕	
Volume (veh/h)	0	54	3	10	158	0	1	0	0	0	0	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	60	3	11	176	0	1	0	0	0	0	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		70										
pX, platoon unblocked												
vC, conflicting volume	176			63			261	259	62	259	261	176
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176			63			261	259	62	259	261	176
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			100	100	100	100	100	100
cM capacity (veh/h)	1401			1539			688	640	1003	690	639	868

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	63	11	176	1	1
Volume Left	0	11	0	1	0
Volume Right	3	0	0	0	1
cSH	1401	1539	1700	688	868
Volume to Capacity	0.00	0.01	0.10	0.00	0.00
Queue Length 95th (ft)	0	1	0	0	0
Control Delay (s)	0.0	7.4	0.0	10.2	9.2
Lane LOS		A		B	A
Approach Delay (s)	0.0	0.4		10.2	9.2
Approach LOS				B	A

Intersection Summary				
Average Delay			0.4	
Intersection Capacity Utilization		18.3%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis
7: Hocker Ave & SR 235

2035 AM
SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Volume (veh/h)	17	8	364	11	10	764
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	19	9	404	12	11	849
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh			2			2
Upstream signal (ft)						1018
pX, platoon unblocked	0.59					
vC, conflicting volume	1282	411			417	
vC1, stage 1 conf vol	411					
vC2, stage 2 conf vol	871					
vCu, unblocked vol	1133	411			417	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	99			99	
cM capacity (veh/h)	341	641			1142	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	28	417	11	849
Volume Left	19	0	11	0
Volume Right	9	12	0	0
cSH	401	1700	1142	1700
Volume to Capacity	0.07	0.25	0.01	0.50
Queue Length 95th (ft)	6	0	1	0
Control Delay (s)	14.6	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	14.6	0.0	0.1	
Approach LOS	B			

Intersection Summary			
Average Delay		0.4	
Intersection Capacity Utilization		50.2%	ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis
 8: Dalton Dr & SR 235

2035 AM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	8	363	7	19	732
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	10	9	403	8	21	813
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage (veh)	2			2		
Upstream signal (ft)				1178		
pX, platoon unblocked	0.63					
vC, conflicting volume	1263	407	411			
vC1, stage 1 conf vol	407					
vC2, stage 2 conf vol	856					
vCu, unblocked vol	1121	407	411			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	99	98			
cM capacity (veh/h)	346	644	1148			

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	19	411	21	813
Volume Left	10	0	21	0
Volume Right	9	8	0	0
cSH	443	1700	1148	1700
Volume to Capacity	0.04	0.24	0.02	0.48
Queue Length 95th (ft)	3	0	1	0
Control Delay (s)	13.5	0.0	8.2	0.0
Lane LOS	B		A	
Approach Delay (s)	13.5	0.0	0.2	
Approach LOS	B			

Intersection Summary				
Average Delay	0.3			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
 9: Gerlaugh Rd & SR 235

2035 AM
 SR 235, Clark County, Ohio



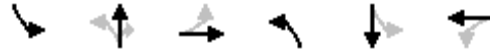
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔		↔	↑	↔	↔	↔	↔
Volume (vph)	25	17	99	189	16	58	12	301	31	32	764	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Fr _t		0.91		1.00	0.88		1.00	1.00	0.85	1.00	1.00	
Fl _t Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1672		1770	1645		1770	1863	1583	1770	1859	
Fl _t Permitted		0.94		0.65	1.00		0.12	1.00	1.00	0.47	1.00	
Satd. Flow (perm)		1587		1205	1645		217	1863	1583	871	1859	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	19	110	210	18	64	13	334	34	36	849	12
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	157	0	210	82	0	13	334	34	36	861	0
Turn Type	Perm		Perm		pm+pt		Perm		pm+pt			
Protected Phases		4		8	8		5	2		1	6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		18.4		18.4	18.4		35.5	34.4	34.4	40.7	37.0	
Effective Green, g (s)		18.4		18.4	18.4		35.5	34.4	34.4	40.7	37.0	
Actuated g/C Ratio		0.26		0.26	0.26		0.50	0.48	0.48	0.57	0.52	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		408		310	423		132	896	762	542	962	
v/s Ratio Prot					0.05		0.00	0.18		c0.00	c0.46	
v/s Ratio Perm		0.10		c0.17			0.05		0.02	0.03		
v/c Ratio		0.38		0.68	0.19		0.10	0.37	0.04	0.07	0.90	
Uniform Delay, d ₁		21.9		23.9	20.8		13.2	11.7	9.8	7.0	15.5	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d ₂		0.6		5.8	0.2		0.3	0.3	0.0	0.1	10.7	
Delay (s)		22.5		29.7	21.0		13.6	12.0	9.9	7.1	26.2	
Level of Service		C		C	C		B	B	A	A	C	
Approach Delay (s)		22.5			27.2			11.9			25.5	
Approach LOS		C			C			B			C	

Intersection Summary

HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
 9: Gerlaugh Rd & SR 235

2035 AM
 SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	53	25	12	53	25
Maximum Split (%)	13.3%	58.9%	27.8%	13.3%	58.9%	27.8%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	65	0	12	65
End Time (s)	12	65	0	12	65	0
Yield/Force Off (s)	7	60	85	7	60	85
Yield/Force Off 170(s)	7	49	74	7	49	74
Local Start Time (s)	78	0	53	78	0	53
Local Yield (s)	85	48	73	85	48	73
Local Yield 170(s)	85	37	62	85	37	62

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 9: Gerlaugh Rd & SR 235



HCM Signalized Intersection Capacity Analysis

2035 PM

1: US 40 & SR 235

SR 235, Clark County, Ohio



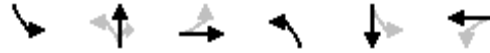
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑	↗	↖	↗	
Volume (vph)	102	175	55	203	174	43	72	612	217	81	452	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.96		1.00	0.97		1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1796		1770	1807		1770	1863	1583	1770	1813	
Flt Permitted	0.53	1.00		0.50	1.00		0.21	1.00	1.00	0.14	1.00	
Satd. Flow (perm)	979	1796		941	1807		382	1863	1583	267	1813	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	113	194	61	226	193	48	80	680	241	90	502	110
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	113	255	0	226	241	0	80	680	241	90	612	0
Turn Type	Perm		Perm		pm+pt		Perm		pm+pt			
Protected Phases	4		8		5		2		1		6	
Permitted Phases	4		8		2		2		6			
Actuated Green, G (s)	23.6	23.6	23.6	23.6	38.2	33.2	33.2	33.2	38.2	33.2	33.2	
Effective Green, g (s)	23.6	23.6	23.6	23.6	38.2	33.2	33.2	33.2	38.2	33.2	33.2	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.50	0.43	0.43	0.43	0.50	0.43	0.43	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	301	552	289	555	280	805	684	231	784			
v/s Ratio Prot		0.14		0.13	0.02	c0.37		c0.03	0.34			
v/s Ratio Perm	0.12		c0.24		0.12		0.15	0.17				
v/c Ratio	0.38	0.46	0.78	0.43	0.29	0.84	0.35	0.39	0.78			
Uniform Delay, d1	20.8	21.5	24.3	21.3	12.4	19.5	14.6	13.6	18.7			
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	0.8	0.6	12.9	0.5	0.6	8.1	0.3	1.1	5.1			
Delay (s)	21.6	22.1	37.1	21.8	12.9	27.6	14.9	14.7	23.7			
Level of Service	C	C	D	C	B	C	B	B	C			
Approach Delay (s)		21.9		29.2		23.4		22.6				
Approach LOS		C		C		C		C				

Intersection Summary

HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	76.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
1: US 40 & SR 235

2035 PM
SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	45	33	12	45	33
Maximum Split (%)	13.3%	50.0%	36.7%	13.3%	50.0%	36.7%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	57	0	12	57
End Time (s)	12	57	0	12	57	0
Yield/Force Off (s)	7	52	85	7	52	85
Yield/Force Off 170(s)	7	41	74	7	41	74
Local Start Time (s)	78	0	45	78	0	45
Local Yield (s)	85	40	73	85	40	73
Local Yield 170(s)	85	29	62	85	29	62

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	75

Splits and Phases: 1: US 40 & SR 235



HCM Unsignalized Intersection Capacity Analysis
 2: Dille Rd & SR 235

2035 PM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T	T	T	T
Volume (veh/h)	30	13	833	44	18	662
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	14	926	49	20	736
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			None
Median storage (veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1701	926			974	
vC1, stage 1 conf vol	926					
vC2, stage 2 conf vol	776					
vCu, unblocked vol	1701	926			974	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	96			97	
cM capacity (veh/h)	299	326			708	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	48	926	49	20	736
Volume Left	33	0	0	20	0
Volume Right	14	0	49	0	0
cSH	307	1700	1700	708	1700
Volume to Capacity	0.16	0.54	0.03	0.03	0.43
Queue Length 95th (ft)	14	0	0	2	0
Control Delay (s)	18.9	0.0	0.0	10.2	0.0
Lane LOS	C			B	
Approach Delay (s)	18.9	0.0		0.3	
Approach LOS	C				

Intersection Summary					
Average Delay			0.6		
Intersection Capacity Utilization		53.8%		ICU Level of Service	A
Analysis Period (min)		15			

HCM Unsignalized Intersection Capacity Analysis
 3: Hartley Ave & SR 235

2035 PM
 SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↘		↗	↘	
Volume (veh/h)	30	7	13	6	4	13	18	854	22	20	723	13
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	8	14	7	4	14	20	949	24	22	803	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type							TWTL			TWTL		
Median storage veh							2			2		
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1861	1868	811	1867	1863	961	818			973		
vC1, stage 1 conf vol	855	855		1001	1001							
vC2, stage 2 conf vol	1006	1013		866	862							
vCu, unblocked vol	1861	1868	811	1867	1863	961	818			973		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	83	97	96	97	98	95	98			97		
cM capacity (veh/h)	199	229	380	206	234	311	810			708		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	56	26	20	973	22	818
Volume Left	33	7	20	0	22	0
Volume Right	14	14	0	24	0	14
cSH	232	261	810	1700	708	1700
Volume to Capacity	0.24	0.10	0.02	0.57	0.03	0.48
Queue Length 95th (ft)	23	8	2	0	2	0
Control Delay (s)	25.4	20.3	9.6	0.0	10.2	0.0
Lane LOS	D	C	A		B	
Approach Delay (s)	25.4	20.3	0.2		0.3	
Approach LOS	D	C				

Intersection Summary		
Average Delay		1.2
Intersection Capacity Utilization	58.8%	ICU Level of Service
Analysis Period (min)		15
		B

HCM Unsignalized Intersection Capacity Analysis
 4: Daleridge Rd & SR 235

2035 PM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	7	927	20	17	703
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	8	1030	22	19	781
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage (veh)			2		2	
Upstream signal (ft)			693			
pX, platoon unblocked	0.45	0.45			0.45	
vC, conflicting volume	1860	1041			1052	
vC1, stage 1 conf vol	1041					
vC2, stage 2 conf vol	819					
vCu, unblocked vol	2292	491			515	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	97			96	
cM capacity (veh/h)	221	263			478	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	14	1052	19	781
Volume Left	7	0	19	0
Volume Right	8	22	0	0
cSH	241	1700	478	1700
Volume to Capacity	0.06	0.62	0.04	0.46
Queue Length 95th (ft)	5	0	3	0
Control Delay (s)	20.9	0.0	12.8	0.0
Lane LOS	C		B	
Approach Delay (s)	20.9	0.0	0.3	
Approach LOS	C			

Intersection Summary			
Average Delay		0.3	
Intersection Capacity Utilization		60.0%	ICU Level of Service B
Analysis Period (min)		15	

HCM Signalized Intersection Capacity Analysis

2035 PM

5: Styer Rd & SR 235

SR 235, Clark County, Ohio



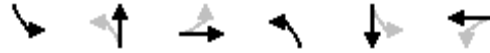
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↗	↘		↗	↘		↗	↘	
Volume (vph)	15	12	11	63	17	126	21	816	103	204	569	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt		0.96		1.00	0.87		1.00	0.98		1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1755		1770	1617		1770	1832		1770	1855	
Flt Permitted		0.84		0.73	1.00		0.37	1.00		0.07	1.00	
Satd. Flow (perm)		1512		1359	1617		694	1832		130	1855	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	13	12	70	19	140	23	907	114	227	632	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	42	0	70	159	0	23	1021	0	227	649	0
Turn Type	Perm			Perm			pm+pt			pm+pt		
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.4		13.4	13.4		54.9	52.2		66.7	59.0	
Effective Green, g (s)		13.4		13.4	13.4		54.9	52.2		66.7	59.0	
Actuated g/C Ratio		0.15		0.15	0.15		0.61	0.58		0.74	0.65	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		225		202	240		455	1061		269	1215	
v/s Ratio Prot					c0.10		0.00	c0.56		c0.09	0.35	
v/s Ratio Perm		0.03		0.05			0.03			0.53		
v/c Ratio		0.19		0.35	0.66		0.05	0.96		0.84	0.53	
Uniform Delay, d1		33.6		34.4	36.2		7.2	18.0		28.0	8.3	
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.4		1.0	6.7		0.0	19.1		20.8	0.5	
Delay (s)		34.0		35.5	42.9		7.2	37.1		48.8	8.7	
Level of Service		C		D	D		A	D		D	A	
Approach Delay (s)		34.0			40.6			36.4			19.1	
Approach LOS		C			D			D			B	

Intersection Summary

HCM Average Control Delay	29.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	15.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
5: Styer Rd & SR 235

2035 PM
SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	15	54	21	15	54	21
Maximum Split (%)	16.7%	60.0%	23.3%	16.7%	60.0%	23.3%
Minimum Split (s)	15	21	21	15	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	7
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	15	69	0	15	69
End Time (s)	15	69	0	15	69	0
Yield/Force Off (s)	10	64	85	10	64	85
Yield/Force Off 170(s)	10	53	74	10	53	74
Local Start Time (s)	75	0	54	75	0	54
Local Yield (s)	85	49	70	85	49	70
Local Yield 170(s)	85	38	59	85	38	59

Intersection Summary

Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	90

Splits and Phases: 5: Styer Rd & SR 235



HCM Unsignalized Intersection Capacity Analysis
6: Styer Rd & McAdams

2035 PM
SR 235, Clark County, Ohio



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (veh/h)	3	291	26	18	180	0	22	2	37	3	0	3
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	3	323	29	20	200	0	24	2	41	3	0	3
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		70										
pX, platoon unblocked				0.95			0.95	0.95	0.95	0.95	0.95	
vC, conflicting volume	200			352			588	584	338	627	599	200
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	200			293			541	537	278	582	553	200
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			98			94	99	94	99	100	100
cM capacity (veh/h)	1372			1206			422	420	724	374	412	841

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	356	20	200	68	7
Volume Left	3	20	0	24	3
Volume Right	29	0	0	41	3
cSH	1372	1206	1700	565	518
Volume to Capacity	0.00	0.02	0.12	0.12	0.01
Queue Length 95th (ft)	0	1	0	10	1
Control Delay (s)	0.1	8.0	0.0	12.2	12.0
Lane LOS	A	A		B	B
Approach Delay (s)	0.1	0.7		12.2	12.0
Approach LOS				B	B

Intersection Summary

Average Delay		1.7			
Intersection Capacity Utilization		30.1%		ICU Level of Service	A
Analysis Period (min)		15			

HCM Unsignalized Intersection Capacity Analysis
 7: Hocker Ave & SR 235

2035 PM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
Volume (veh/h)	29	10	930	59	28	620
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	32	11	1033	66	31	689
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage veh			2		2	
Upstream signal (ft)					1018	
pX, platoon unblocked	0.81					
vC, conflicting volume	1817	1066			1099	
vC1, stage 1 conf vol	1066					
vC2, stage 2 conf vol	751					
vCu, unblocked vol	1893	1066			1099	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	96			95	
cM capacity (veh/h)	261	270			635	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	43	1099	31	689
Volume Left	32	0	31	0
Volume Right	11	66	0	0
cSH	263	1700	635	1700
Volume to Capacity	0.16	0.65	0.05	0.41
Queue Length 95th (ft)	14	0	4	0
Control Delay (s)	21.4	0.0	11.0	0.0
Lane LOS	C		B	
Approach Delay (s)	21.4	0.0	0.5	
Approach LOS	C			

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization	62.5%		ICU Level of Service B
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
 8: Dalton Dr & SR 235

2035 PM
 SR 235, Clark County, Ohio



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	32	12	929	16	6	641
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	36	13	1032	18	7	712
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL		TWLTL	
Median storage veh			2		2	
Upstream signal (ft)					1178	
pX, platoon unblocked	0.81					
vC, conflicting volume	1767	1041			1050	
vC1, stage 1 conf vol	1041					
vC2, stage 2 conf vol	726					
vCu, unblocked vol	1829	1041			1050	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	87	95			99	
cM capacity (veh/h)	274	279			663	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	49	1050	7	712
Volume Left	36	0	7	0
Volume Right	13	18	0	0
cSH	276	1700	663	1700
Volume to Capacity	0.18	0.62	0.01	0.42
Queue Length 95th (ft)	16	0	1	0
Control Delay (s)	20.9	0.0	10.5	0.0
Lane LOS	C		B	
Approach Delay (s)	20.9	0.0	0.1	
Approach LOS	C			

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		59.9%	ICU Level of Service
Analysis Period (min)		15	B

HCM Signalized Intersection Capacity Analysis

2035 PM

9: Gerlaugh Rd & SR 235

SR 235, Clark County, Ohio



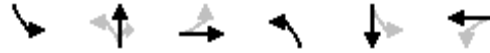
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↑	↕	↕	↕	↕
Volume (vph)	47	69	26	103	49	102	112	817	192	125	494	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt		0.98		1.00	0.90		1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1787		1770	1674		1770	1863	1583	1770	1845	
Flt Permitted		0.77		0.60	1.00		0.33	1.00	1.00	0.11	1.00	
Satd. Flow (perm)		1405		1118	1674		610	1863	1583	197	1845	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	52	77	29	114	54	113	124	908	213	139	549	37
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	158	0	114	167	0	124	908	213	139	586	0
Turn Type	Perm		Perm		pm+pt		Perm		pm+pt			
Protected Phases		4			8		5	2			1	6
Permitted Phases	4			8		2			2		6	
Actuated Green, G (s)		14.1		14.1	14.1		49.3	44.1	44.1	49.3	44.1	
Effective Green, g (s)		14.1		14.1	14.1		49.3	44.1	44.1	49.3	44.1	
Actuated g/C Ratio		0.18		0.18	0.18		0.63	0.56	0.56	0.63	0.56	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		253		201	301		461	1048	890	228	1038	
v/s Ratio Prot					0.10		0.02	c0.49		c0.04	0.32	
v/s Ratio Perm		c0.11		0.10			0.15		0.13	0.34		
v/c Ratio		0.62		0.57	0.55		0.27	0.87	0.24	0.61	0.56	
Uniform Delay, d1		29.7		29.4	29.3		6.8	14.6	8.7	13.2	11.0	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		4.7		3.6	2.2		0.3	7.7	0.1	4.6	0.7	
Delay (s)		34.4		33.0	31.5		7.1	22.3	8.8	17.8	11.7	
Level of Service		C		C	C		A	C	A	B	B	
Approach Delay (s)		34.4			32.1			18.5			12.9	
Approach LOS		C			C			B			B	

Intersection Summary

HCM Average Control Delay	19.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	78.4	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Timing Report, Sorted By Phase
 9: Gerlaugh Rd & SR 235

2035 PM
 SR 235, Clark County, Ohio



Phase Number	1	2	4	5	6	8
Movement	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Lead/Lag	Lead	Lag		Lead	Lag	
Lead-Lag Optimize	Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None
Maximum Split (s)	12	57	21	12	57	21
Maximum Split (%)	13.3%	63.3%	23.3%	13.3%	63.3%	23.3%
Minimum Split (s)	12	21	21	12	21	21
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5	1.5
Minimum Initial (s)	7	10	10	7	10	10
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)		5	5		5	5
Flash Dont Walk (s)		11	11		11	11
Dual Entry	No	Yes	Yes	No	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	12	69	0	12	69
End Time (s)	12	69	0	12	69	0
Yield/Force Off (s)	7	64	85	7	64	85
Yield/Force Off 170(s)	7	53	74	7	53	74
Local Start Time (s)	78	0	57	78	0	57
Local Yield (s)	85	52	73	85	52	73
Local Yield 170(s)	85	41	62	85	41	62

Intersection Summary











Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	80

Splits and Phases: 9: Gerlaugh Rd & SR 235



HCM Unsignalized Intersection Capacity Analysis
 29: SR 235 & McAdams with Hocker Traffic

2035 AM Preferred Concept 3A
 SR 235, Clark County, Ohio

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	34	16	325	22	20	768
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	38	18	361	24	22	853
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (ft)				467		
pX, platoon unblocked	0.62					
vC, conflicting volume	1271	373			386	
vC1, stage 1 conf vol	373					
vC2, stage 2 conf vol	898					
vCu, unblocked vol	1130	373			386	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	97			98	
cM capacity (veh/h)	329	673			1173	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	56	386	22	853		
Volume Left	38	0	22	0		
Volume Right	18	24	0	0		
cSH	393	1700	1173	1700		
Volume to Capacity	0.14	0.23	0.02	0.50		
Queue Length 95th (ft)	12	0	1	0		
Control Delay (s)	15.7	0.0	8.1	0.0		
Lane LOS	C		A			
Approach Delay (s)	15.7	0.0	0.2			
Approach LOS	C					
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			50.4%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 31: SR 235 & McAdams with Hocker Traffic

2035 PM- Preferred Concept 3A
 SR 235, Clark County, Ohio

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↗		↘	↕
Volume (veh/h)	60	20	940	120	60	620
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	22	1044	133	67	689
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			None		
Median storage (veh)	2					
Upstream signal (ft)				463		
pX, platoon unblocked	0.80					
vC, conflicting volume	1933	1111			1178	
vC1, stage 1 conf vol	1111					
vC2, stage 2 conf vol	822					
vCu, unblocked vol	2041	1111			1178	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	72	91			89	
cM capacity (veh/h)	235	254			593	
Direction, Lane #	WB 1	NB 1	SB 1	SB 2		
Volume Total	89	1178	67	689		
Volume Left	67	0	67	0		
Volume Right	22	133	0	0		
cSH	239	1700	593	1700		
Volume to Capacity	0.37	0.69	0.11	0.41		
Queue Length 95th (ft)	41	0	9	0		
Control Delay (s)	28.7	0.0	11.8	0.0		
Lane LOS	D		B			
Approach Delay (s)	28.7	0.0	1.0			
Approach LOS	D					
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			68.0%	ICU Level of Service	C	
Analysis Period (min)			15			