I-75 at Breese Road

Rehabilitation Option

HCS Analysis

Year 2015

HCS+: Signalized Intersections Release 5.21

Analyst: JTB
Agency: PB
Date: 02/04/2009
Period: AM Peak
Project ID: ALL-75-2015 AM - Alt 0 Breese Rd at I-75 NB Ramp
E/W St: Breese Road

Inter.: Breese Road & I75 NB Ramp
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: I75 NB Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	1	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	200	70			120	10	160	0	40			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru	A				Thru				
Right	A				Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	25.0	0.0				25.0			
Yellow	4.0					4.0			
All Red	1.0					1.0			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	493	1183	0.45	0.42	13.2	B		
T	754	1810	0.10	0.42	10.7	B	12.6	B
Westbound								
TR	746	1791	0.19	0.42	11.2	B	11.2	B
Northbound								
LTR	673	1616	0.33	0.42	12.1	B	12.1	B
Southbound								

Intersection Delay = 12.1 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JTB
Agency/Co.: PB
Date Performed: 02/10/09
Analysis Time Period: AM Peak
Intersection: Breese Road & I75 SB Exit Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75 2015 AM Peak - Alt0 Breese Rd at I-75 SB Ramp
East/West Street: Breese Road
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		260	140	10	270	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		288	155	11	300	
Percent Heavy Vehicles		--	--	5	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10	0	280
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				11	0	311
Percent Heavy Vehicles				11	11	11
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes				0	1	1
Configuration					LT	R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L				LT		R
v (vph)		11				11		311
C(m) (vph)		1101				395		719
v/c		0.01				0.03		0.43
95% queue length		0.03				0.09		2.19
Control Delay		8.3				14.4		13.8
LOS		A				B		B
Approach Delay							13.8	
Approach LOS							B	

HCS+: Signalized Intersections Release 5.21

Analyst: JTB
Agency: PB
Date: 02/04/2009
Period: PM Peak
Project ID: ALL-75 2015 PM ALT 0 Breese Rd at I-75 NB Ramp
E/W St: Breese Road

Inter.: Breese Road & I75 NB Ramp
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: I75N Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	1	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	240	160			130	10	150	0	20			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol					0			0				

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right					Right	A		
Peds					Peds			
WB Left					SB Left			
Thru	A				Thru			
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	35.0				26.0			
Yellow	3.5				3.5			
All Red	1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	579	1158	0.46	0.50	12.0	B		
T	905	1810	0.20	0.50	9.8	A	11.1	B
Westbound								
TR	896	1792	0.17	0.50	9.7	A	9.7	A
Northbound								
LTR	616	1658	0.31	0.37	15.9	B	15.9	B
Southbound								

Intersection Delay = 12.0 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JTB
Agency/Co.: PB
Date Performed: 02/06/09
Analysis Time Period: PM Peak
Intersection: Breese Road & I75S Exit Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75 2015 PM ALT 0 Breese Rd at I-75 SB Ramp
East/West Street: Breese Road
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		360	200	10	270	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		400	222	11	300	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				60	0	270
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				66	0	300
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes				0	1	1
Configuration				LT		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L				LT		R
v (vph)		11				66		300
C(m) (vph)		954				333		737
v/c		0.01				0.20		0.41
95% queue length		0.03				0.73		1.99
Control Delay		8.8				18.5		13.2
LOS		A				C		B
Approach Delay							14.1	
Approach LOS							B	

I-75 at Breese Road

Rehabilitation Option

HCS Analysis

Year 2035

HCS+: Signalized Intersections Release 5.21

Analyst: JTB
Agency: PB
Date: 02/04/2009
Period: AM Peak
Project ID: ALL-75-2035 AM Alt 0 Breese Rd at I-75 NB Ramp
E/W St: Breese Road

Inter.: Breese Road & I-75 NB Ramp
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I- 75 NB Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	1	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	230	90			150	20	170	0	50			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru	A				Thru				
Right	A				Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	28.0					22.0			
Yellow	4.0					4.0			
All Red	1.0					1.0			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	518	1111	0.49	0.47	11.8	B		
T	845	1810	0.12	0.47	9.1	A	11.1	B
Westbound								
TR	831	1781	0.23	0.47	9.7	A	9.7	A
Northbound								
LTR	591	1612	0.41	0.37	14.7	B	14.7	B
Southbound								

Intersection Delay = 11.9 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JTB
Agency/Co.: PB
Date Performed: 3-25-09
Analysis Time Period: AM Peak
Intersection: Breese Road at I-75 SB Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75-2035 ALT0 BREESE RD I-75 SB RAMP
East/West Street: Breese Road
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		310	150	20	300	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		344	166	22	333	
Percent Heavy Vehicles		--	--	5	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				20	0	320
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				22	0	355
Percent Heavy Vehicles				11	11	11
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes				0	1	1
Configuration					LT	R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L				LT		R
v (vph)		22				22		355
C(m) (vph)		1040				333		702
v/c		0.02				0.07		0.51
95% queue length		0.06				0.21		2.88
Control Delay		8.5				16.6		15.3
LOS		A				C		C
Approach Delay							15.3	
Approach LOS							C	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/04/2009
Period: PM Peak
Project ID: ALL-75 2035 PM ALT 0 Breese Rd at I-75 NB Ramp
E/W St: Breese Road

Inter.: Breese Road & I75 NB Ramp
Area Type: All other areas
Jurisd: ODOT District 1
Year : Baseline
N/S St: I75 NB Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	1	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	260	200			170	20	160	0	30			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru	A				Thru				
Right	A				Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	32.0					19.0			
Yellow	3.5					3.5			
All Red	1.0					1.0			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	581	1089	0.50	0.53	9.6	A		
T	965	1810	0.23	0.53	7.6	A	8.7	A
Westbound								
TR	951	1784	0.22	0.53	7.5	A	7.5	A
Northbound								
LTR	523	1652	0.40	0.32	16.6	B	16.6	B
Southbound								

Intersection Delay = 10.2 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/26/2009
Analysis Time Period: PM Peak
Intersection: Breese Road & I75S Exit Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75 2035 PM ALT0 Breese Rd at I-75 SB Ramp
East/West Street: Breese Road
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		400	220	20	310	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		444	244	22	344	
Percent Heavy Vehicles		--	--	3	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				80	10	290
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				88	11	322
Percent Heavy Vehicles				3	3	3
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes				0	1	1
Configuration				LT		R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L				LT		R
v (vph)		22				99		322
C(m) (vph)		901				268		706
v/c		0.02				0.37		0.46
95% queue length		0.08				1.63		2.40
Control Delay		9.1				26.1		14.3
LOS		A				D		B
Approach Delay							17.1	
Approach LOS							C	

I-75 at Breese Road

Option 3

HCS Analysis

Year 2015

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 4/10/2009
Period: PM Peak
Project ID: ALL-75 2015 AM ALT 3 BREESE ROAD 96
E/W St: Breese Road

Inter.: Breese Road at I75 N Entrance
Area Type: All other areas
Jurisd: ODOT District1
Year : 2015
N/S St: I75 N Entrance

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	1	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	200	70			120	10	160	0	40			
Lane Width		12.0			12.0			12.0				
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right					Right	A		
Peds					Peds			
WB Left					SB Left			
Thru	A				Thru			
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	27.0				24.0			
Yellow	3.5				3.5			
All Red	1.0				1.0			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	578	1285	0.52	0.45	12.7	B	12.7	B
Westbound								
TR	846	1880	0.17	0.45	9.9	A	9.9	A
Northbound								
LTR	711	1778	0.31	0.40	12.6	B	12.6	B
Southbound								

Intersection Delay = 12.1 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 04/10/2009
Analysis Time Period: AM Peak
Intersection: Breese Road & Ft. Shawnee Indu
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75_2015_AM_BREESE RD 119
East/West Street: Breese Road
North/South Street: Ft. Shawnee Indu
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume				10	260	10
Peak-Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				11	288	11
Percent Heavy Vehicles		--	--	35	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10	0	280
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				11	0	311
Percent Heavy Vehicles				6	35	6
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		Yes	/5
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LTR					LTR	
v (vph)		11					322	
C(m) (vph)								
v/c								
95% queue length								
Control Delay								
LOS								
Approach Delay								
Approach LOS								

Phone: Fax:
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: JB
Agency/Co.: PB
Date Performed: 07/31/2006
Analysis Time Period: AM Peak
Intersection: I75 S Off Ramp & Ft. Shawnee I
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75_2015_AM-ALT3_BREESE RD 130
East/West Street: I75 S Off Ramp
North/South Street:

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	290	0	0	0	0	0	0	0	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			L					
PHF			0.73					
Flow Rate			397					
% Heavy Veh			4					
No. Lanes			1					
Opposing-Lanes			0					
Conflicting-lanes			0					
Geometry group			1					

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			397					
Left-Turn			397					
Right-Turn			0					
Prop. Left-Turns			1.0					
Prop. Right-Turns			0.0					
Prop. Heavy Vehicle			0.0					
Geometry Group			1					
Adjustments Exhibit 17-33:								
hLT-adj			0.2					

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 4/10/2009
Period: PM Peak
Project ID: ALL-75 2015 PM ALT 3 BREESE ROAD 96
E/W St: Breese Road

Inter.: Breese Road at I75 N Entrance
Area Type: All other areas
Jurisd: ODOT District1
Year : 2015
N/S St: I75 N Entrance

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	1	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	240	160			130	10	150	0	20			
Lane Width		12.0			12.0			12.0				
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru	A				Thru				
Right	A				Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	30.0					22.0			
Yellow	3.5					3.5			
All Red	0.5					0.5			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	672	1344	0.66	0.50	13.7	B	13.7	B
Westbound								
TR	941	1882	0.16	0.50	8.3	A	8.3	A
Northbound								
LTR	657	1791	0.29	0.37	13.7	B	13.7	B
Southbound								

Intersection Delay = 12.6 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 04/10/2009
Analysis Time Period: PM Peak
Intersection: Breese Road & Ft. Shawnee Indu
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75_2015_PM-ALT3_BREESE RD 119
East/West Street: Breese Road
North/South Street: Ft. Shawnee Indu
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	340	200	10	250	20
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	377	222	11	277	22
Percent Heavy Vehicles	4	--	--	35	--	--
Median Type/Storage	Undivided /					
RT Channelized?		No				
Lanes	0	1	1	0	1	0
Configuration		LT	R		LTR	
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				60	10	260
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				66	11	288
Percent Heavy Vehicles				6	35	6
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		Yes	/5
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT	LTR					LTR	
v (vph)	22	11					365	
C(m) (vph)	1251	835					940	
v/c	0.02	0.01					0.39	
95% queue length	0.05	0.04					1.86	
Control Delay	7.9	9.4					14.6	
LOS	A	A					B	
Approach Delay							14.6	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.21

Phone: Fax:
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: JB
Agency/Co.: PB
Date Performed: 07/31/2006
Analysis Time Period: PM Peak
Intersection: I75 S Off Ramp & Ft. Shawnee I
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75_2015_PM-ALT3_BREESE RD 130
East/West Street: I75 S Off Ramp
North/South Street: Ft. Shawnee I

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	250	0	20	0	10	0	0	20	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR		T		T	
PHF			0.90		0.90		0.90	
Flow Rate			299		11		22	
% Heavy Veh			4		6		6	
No. Lanes			1		1		1	
Opposing-Lanes			0		1		1	
Conflicting-lanes			1		1		1	
Geometry group			1		1		1	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			299		11		22	
Left-Turn			277		0		0	
Right-Turn			22		0		0	
Prop. Left-Turns			0.9		0.0		0.0	
Prop. Right-Turns			0.1		0.0		0.0	
Prop. Heavy Vehicle			0.0		0.1		0.1	
Geometry Group			1		1		1	
Adjustments Exhibit 17-33:								
hLT-adj			0.2		0.2		0.2	

I-75 at Breese Road

Option 3

HCS Analysis

Year 2035

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 03/20/2009
Period: PM Peak
Project ID: ALL-75-2035 AM ALT 3 BREESE ROAD 96
E/W St: Breese Road

Inter.: Breese Road & I75N Ent Ramp
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I75N Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	0	0	1	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	230	90			150	20	170	0	50			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left	A			
Thru	A				Thru	A			
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru	A				Thru				
Right	A				Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	28.0					22.0			
Yellow	4.0					4.0			
All Red	1.0					1.0			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	524	1122	0.49	0.47	11.8	B		
T	853	1827	0.12	0.47	9.1	A	11.0	B
Westbound								
TR	839	1798	0.23	0.47	9.7	A	9.7	A
Northbound								
LTR	602	1642	0.41	0.37	14.6	B	14.6	B
Southbound								

Intersection Delay = 11.8 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 03/24/2009
Analysis Time Period: PM Peak
Intersection: Breese Road & Ft. Shawnee Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75-2035 AM ALT3 BREESE RD 119
East/West Street: Breese Road
North/South Street: I-75 Ramp /Ft. Shawnee
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	300	150	20	290	10
Peak-Hour Factor, PHF	0.84	0.84	0.92	0.92	0.85	0.85
Hourly Flow Rate, HFR	11	357	163	21	341	11
Percent Heavy Vehicles	4	--	--	35	--	--
Median Type/Storage	Undivided /					
RT Channelized?		No				
Lanes	0	1	1	1	1	0
Configuration		LT	R	L		TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				20	0	320
Peak Hour Factor, PHF				0.73	0.92	0.73
Hourly Flow Rate, HFR				27	0	438
Percent Heavy Vehicles				6	35	6
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes				0	1	1
Configuration					LT	R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT	L				LT		R
v (vph)	11	21				27		438
C(m) (vph)	1196	898				316		688
v/c	0.01	0.02				0.09		0.64
95% queue length	0.03	0.07				0.28		4.58
Control Delay	8.0	9.1				17.5		18.9
LOS	A	A				C		C
Approach Delay							18.9	
Approach LOS							C	

Phone: Fax:
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 07/31/2006
Analysis Time Period: PM Peak
Intersection: I75 S Off Ramp & Ft. Shawnee I
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75_2035_AM-ALT3_BREESE RD 130
East/West Street: I-75 Off Ramp
North/South Street:

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	330	0	10	0	0	0	0	10	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR				T	
PHF			0.74				0.73	
Flow Rate			458				13	
% Heavy Veh			4				6	
No. Lanes			1				1	
Opposing-Lanes			0				0	
Conflicting-lanes			1				1	
Geometry group			1				1	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			458				13	
Left-Turn			445				0	
Right-Turn			13				0	
Prop. Left-Turns			1.0				0.0	
Prop. Right-Turns			0.0				0.0	
Prop. Heavy Vehicle			0.0				0.1	
Geometry Group			1				1	
Adjustments Exhibit 17-33:								
hLT-adj			0.2				0.2	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 4/10/2009
Period: PM Peak
Project ID: ALL-75 2035 PM ALT 3 BREESE ROAD 96
E/W St: Breese Road

Inter.: Breese Road at I75 N Entrance
Area Type: All other areas
Jurisd: ODOT District1
Year : 2035
N/S St: I75 N Entrance

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	1	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	260	200			170	20	160	0	30			
Lane Width		12.0			12.0			12.0				
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right					Right	A		
Peds					Peds			
WB Left					SB Left			
Thru	A				Thru			
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	31.5					18.5		
Yellow	4.0					4.0		
All Red	1.0					1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	690	1315	0.74	0.52	15.4	B	15.4	B
Westbound								
TR	983	1873	0.21	0.52	7.7	A	7.7	A
Northbound								
LTR	550	1785	0.38	0.31	16.7	B	16.7	B
Southbound								

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 3/1/2009
Analysis Time Period: PM Peak
Intersection: Breese Road & Ft. Shawnee Indu
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75-2035 PM ALT3 - Breese Rd 119
East/West Street: Breese Road
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	380	220	20	280	30
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	422	244	22	311	33
Percent Heavy Vehicles	4	--	--	35	--	--
Median Type/Storage	Undivided /					
RT Channelized?		No				
Lanes	0	1	1	1	1	0
Configuration		LT	R	L		TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				80	10	290
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				88	11	322
Percent Heavy Vehicles				6	35	6
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes				0	1	1
Configuration					LT	R

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT	L				LT		R
v (vph)	22	22				99		322
C(m) (vph)	1204	786				253		704
v/c	0.02	0.03				0.39		0.46
95% queue length	0.06	0.09				1.77		2.41
Control Delay	8.0	9.7				28.1		14.4
LOS	A	A				D		B
Approach Delay							17.6	
Approach LOS							C	

Phone: Fax:
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 03/25/2009
Analysis Time Period: PM Peak
Intersection: I75 S Off Ramp & Ft. Shawnee I
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75-2035-PM ALT 3 BREESE RD 130
East/West Street: I-75 SB Ramp
North/South Street: Ft. Shawnee Industrial Drive

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	290	0	20	0	10	0	0	20	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR		T		T	
PHF			0.90		0.90		0.90	
Flow Rate			344		11		22	
% Heavy Veh			4		6		6	
No. Lanes			1		1		1	
Opposing-Lanes			0		1		1	
Conflicting-lanes			1		1		1	
Geometry group			1		1		1	
Duration, T 0.25 hrs.								

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			344		11		22	
Left-Turn			322		0		0	
Right-Turn			22		0		0	
Prop. Left-Turns			0.9		0.0		0.0	
Prop. Right-Turns			0.1		0.0		0.0	
Prop. Heavy Vehicle			0.0		0.1		0.1	
Geometry Group			1		1		1	
Adjustments Exhibit 17-33:								
hLT-adj			0.2		0.2		0.2	

I-75 at SR 65

Rehabilitation Option

HCS Analysis

Year 2015

HCS+: Signalized Intersections Release 5.21

Analyst: John Brigham
Agency: PB
Date: 02/09/2009
Period: AM Peak
Project ID: ALL-75-2015 AM SR 65 100
E/W St: I75S Entrance Ramp

Inter.: I75S Entrance Ramp & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	1	0	1	1	0	0	1	0
LGConfig					LTR		L	T			TR	
Volume				120	0	100	20	380			260	70
Lane Width					12.0		12.0	12.0			12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru	P		
Right					Right			
Peds					Peds			
WB Left		A			SB Left			
Thru		A			Thru	P		
Right		A			Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		21.0				30.0		
Yellow		3.5				3.5		
All Red		1.0				1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LTR	490	1400	0.50	0.35	16.1	B	16.1	B
Northbound								
L	396	791	0.06	0.50	8.0	A		
T	872	1743	0.48	0.50	11.8	B	11.6	B
Southbound								
TR	789	1577	0.47	0.50	11.7	B	11.7	B

Intersection Delay = 12.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: John Brigham
Agency: PB
Date: 02/09/2009
Period: AM Peak
Project ID: ALL-75-2015 AM SR 65 105
E/W St: I75N Exit Ramp

Inter.: I75N Exit Ramp & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015

N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	0	0	0	1	0	1	1	0
LGConfig		LTR						TR		L	T	
Volume	130	0	50					260	80	80	300	
Lane Width		12.0						12.0		12.0	12.0	
RTOR Vol			0						0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	A				NB Left				
Thru	A				Thru	P			
Right	A				Right	P			
Peds					Peds				
WB Left					SB Left	P			
Thru					Thru	P			
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	22.0					29.0			
Yellow	3.5					3.5			
All Red	1.0					1.0			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	522	1423	0.38	0.37	14.5	B	14.5	B
Westbound								
Northbound								
TR	659	1363	0.57	0.48	14.7	B	14.7	B
Southbound								
L	296	613	0.30	0.48	12.0	B		
T	680	1407	0.49	0.48	13.0	B	12.8	B

Intersection Delay = 13.8 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 07/31/2006
Analysis Time Period: AM Peak
Intersection: Yoder Road & SR65
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75 2015 AM SR 65 128
East/West Street: Yoder Road
North/South Street: SR 65
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		380	20	40	360	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		422	22	44	400	
Percent Heavy Vehicles		--	--	35	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			Yes	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	0		66			
Percent Heavy Vehicles	35		35			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		44		66				
C(m) (vph)		962		559				
v/c		0.05		0.12				
95% queue length		0.14		0.40				
Control Delay		8.9		12.3				
LOS		A		B				
Approach Delay				12.3				
Approach LOS				B				

HCS+: Signalized Intersections Release 5.21

Analyst: John Brigham
Agency: PB
Date: 02/09/2009
Period: PM Peak
Project ID: ALL-75 2015 PM SR 65 100
E/W St: I75S Entrance Ramp

Inter.: I75S Entrance Ramp & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	1	0	1	1	0	0	1	0
LGConfig					LTR		L	T			TR	
Volume				100	0	70	40	310			350	110
Lane Width					12.0		12.0	12.0			12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru	P		
Right					Right			
Peds					Peds			
WB Left		A			SB Left			
Thru		A			Thru	P		
Right		A			Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		21.0				30.0		
Yellow		3.5				3.5		
All Red		1.0				1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LTR	492	1406	0.38	0.35	15.1	B	15.1	B
Northbound								
L	309	618	0.14	0.50	9.0	A		
T	872	1743	0.39	0.50	10.7	B	10.5	B
Southbound								
TR	786	1572	0.65	0.50	15.3	B	15.3	B

Intersection Delay = 13.5 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 04/10/2009
Period: PM Peak
Project ID: ALL-75_2015_PM_SR65 105
E/W St: I75N Exit Ramp

Inter.: I75N Exit Ramp & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015

N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	0	0	0	1	0	1	1	0
LGConfig		LTR						TR		L	T	
Volume	70	0	40					260	110	150	300	
Lane Width		12.0						12.0		12.0	12.0	
RTOR Vol			0						0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left			
Thru	A				Thru	P		
Right	A				Right	P		
Peds	X				Peds	X		
WB Left					SB Left	P		
Thru					Thru	P		
Right					Right			
Peds					Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	21.0					30.0		
Yellow	3.5					3.5		
All Red	1.0					1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	494	1412	0.24	0.35	14.1	B	14.1	B
Westbound								
Northbound								
TR	676	1351	0.60	0.50	14.5	B	14.5	B
Southbound								
L	301	601	0.54	0.50	16.0	B		
T	704	1407	0.46	0.50	11.6	B	13.1	B

Intersection Delay = 13.8 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 02/10/09
Analysis Time Period: PM Peak
Intersection: Yoder Road & SR65
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75 2015 SR 65 128
East/West Street: Yoder Road
North/South Street: SR 65
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		350	20	30	330	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		388	22	33	366	
Percent Heavy Vehicles		--	--	35	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			Yes	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	0		66			
Percent Heavy Vehicles	35		35			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		33		66				
C(m) (vph)		992		585				
v/c		0.03		0.11				
95% queue length		0.10		0.38				
Control Delay		8.8		11.9				
LOS		A		B				
Approach Delay				11.9				
Approach LOS				B				

I-75 at SR 65

Rehabilitation Option

HCS Analysis

Year 2035

HCS+: Signalized Intersections Release 5.21

Analyst: John Brigham
Agency: PB
Date: 02/09/2009
Period: AM Peak
Project ID: ALL-75 205 AM SR 65 100 (SR 65 TO SB I-75)
E/W St: I75S Entrance Ramp_SR65

Inter.: I75S Entrance Ramp_SR65 & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	1	0	1	1	0	0	1	0
LGConfig					LTR		L	T			TR	
Volume				130	0	100	20	400			260	80
Lane Width					12.0		12.0	12.0			12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru	P		
Right					Right			
Peds					Peds			
WB Left		A			SB Left			
Thru		A			Thru	P		
Right		A			Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		21.0				30.0		
Yellow		3.5				3.5		
All Red		1.0				1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LTR	491	1403	0.52	0.35	16.5	B	16.5	B
Northbound								
L	388	776	0.06	0.50	8.0	A		
T	872	1743	0.51	0.50	12.2	B	12.0	B
Southbound								
TR	786	1572	0.48	0.50	12.0	B	12.0	B

Intersection Delay = 13.0 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: John Brigham
Agency: PB
Date: 02/09/2009
Period: AM Peak
Project ID: ALL-75-2035 PM SR 65 - 105 (SR 65 TO I-75 NB Ramp)
E/W St: I75N Exit Ramp

Inter.: I75SB Exit Ramp & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	0	0	0	1	0	1	1	0
LGConfig		LTR						TR		L	T	
Volume	150	0	50					260	80	80	310	
Lane Width		12.0						12.0		12.0	12.0	
RTOR Vol			0						0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left			
Thru	A				Thru	P		
Right	A				Right	P		
Peds					Peds			
WB Left					SB Left	P		
Thru					Thru	P		
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0				31.0			
Yellow	3.5				3.5			
All Red	1.0				1.0			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	476	1427	0.47	0.33	16.5	B	16.5	B
Westbound								
Northbound								
TR	704	1363	0.54	0.52	12.6	B	12.6	B
Southbound								
L	330	639	0.27	0.52	10.1	B		
T	727	1407	0.47	0.52	11.5	B	11.2	B

Intersection Delay = 12.9 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 02/10/09
Analysis Time Period: AM Peak
Intersection: Yoder Road & SR65
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL - 75 - 2035 AM SR 65
East/West Street: Yoder Road
North/South Street: SR 65
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		380	20	40	360	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		422	22	44	400	
Percent Heavy Vehicles		--	--	35	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			Yes	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	0		66			
Percent Heavy Vehicles	35		35			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		44		66				
C(m) (vph)		962		559				
v/c		0.05		0.12				
95% queue length		0.14		0.40				
Control Delay		8.9		12.3				
LOS		A		B				
Approach Delay				12.3				
Approach LOS				B				

HCS+: Signalized Intersections Release 5.21

Analyst: John Brigham
Agency: PB
Date: 02/09/2009
Period: PM Peak
Project ID: ALL-75 - 2035 PM SR 65 - 100 (NB SR 65 TO SB I-75)
E/W St: I75S Entrance Ramp

Inter.: I75S Entrance Ramp & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035 PM
N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	1	0	1	1	0	0	1	0
LGConfig					LTR		L	T			TR	
Volume				100	0	70	50	330			360	130
Lane Width					12.0		12.0	12.0			12.0	
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru	P		
Right					Right			
Peds					Peds			
WB Left		A			SB Left			
Thru		A			Thru	P		
Right		A			Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		20.0				31.0		
Yellow		3.5				3.5		
All Red		1.0				1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LTR	469	1406	0.40	0.33	16.0	B	16.0	B
Northbound								
L	311	602	0.18	0.52	9.0	A		
T	901	1743	0.41	0.52	10.2	B	10.1	B
Southbound								
TR	809	1566	0.67	0.52	15.2	B	15.2	B

Intersection Delay = 13.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: John Brigham
Agency: PB
Date: 02/09/2009
Period: PM Peak
Project ID: ALL-75-2035 PM SR 65 - 105 (SR 65 TO I-75 NB Ramp)
E/W St: I75N Ramp

Inter.: I75N Exit Ramp & SR65
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: SR65

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	0	0	0	1	0	1	1	0
LGConfig		LTR						TR		L	T	
Volume	80	10	40					280	120	160	300	
Lane Width		12.0						12.0		12.0	12.0	
RTOR Vol			0						0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left			
Thru	A				Thru	P		
Right	A				Right	P		
Peds					Peds			
WB Left					SB Left	P		
Thru					Thru	P		
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0					31.0		
Yellow	3.5					3.5		
All Red	1.0					1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	475	1425	0.30	0.33	15.2	B	15.2	B
Westbound								
Northbound								
TR	697	1350	0.64	0.52	14.9	B	14.9	B
Southbound								
L	297	574	0.60	0.52	18.8	B		
T	727	1407	0.46	0.52	11.3	B	13.9	B

Intersection Delay = 14.5 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 02/10/09
Analysis Time Period: PM Peak
Intersection: Yoder Road & SR65
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75-2035 PM SR 65 - 128
East/West Street: Yoder Road
North/South Street: SR 65
Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		380	20	40	340	
Peak-Hour Factor, PHF		0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR		422	22	44	377	
Percent Heavy Vehicles		--	--	35	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			Yes	

Minor Street: Approach	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	0		60			
Peak Hour Factor, PHF	0.90		0.90			
Hourly Flow Rate, HFR	0		66			
Percent Heavy Vehicles	35		35			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LR				
v (vph)		44		66				
C(m) (vph)		962		559				
v/c		0.05		0.12				
95% queue length		0.14		0.40				
Control Delay		8.9		12.3				
LOS		A		B				
Approach Delay				12.3				
Approach LOS				B				

I-75 at Fourth Street

Rehabilitation Option

HCS Analysis

Year 2015

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: John Brigham
Agency/Co.: PB
Date Performed: 02/06/2009
Analysis Time Period: AM Peak
Intersection: Fourth Street at I-75 SB Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75 2015 AM Fourth Street
East/West Street: Fourth Street
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	100	150			150	60
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	111	166			166	66
Percent Heavy Vehicles	17	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1			1	0
Configuration	L	T				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				70		110
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				77		122
Percent Heavy Vehicles				12		12
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	111						199	
C(m) (vph)	1252						595	
v/c	0.09						0.33	
95% queue length	0.29						1.46	
Control Delay	8.2						14.1	
LOS	A						B	
Approach Delay							14.1	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/10/09
Analysis Time Period: AM PEAK
Intersection: East 4th Street & Patrol Drive
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75 2015 AM Fourth Street 2
East/West Street: Fourth Street
North/South Street: I-75 Ramp / Patrol Drive
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	170	30	60	200	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	188	33	66	222	11
Percent Heavy Vehicles	12	--	--	13	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	1	1	0
Configuration		LTR		L		TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	10	130	0	10	0
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	11	144	0	11	0
Percent Heavy Vehicles	8	8	8	1	1	1
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	1	1	0
Configuration		LTR		L		TR

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	L		LTR		L		TR
v (vph)	22	66		166		0		11
C(m) (vph)	1278	1286		707		277		375
v/c	0.02	0.05		0.23		0.00		0.03
95% queue length	0.05	0.16		0.91		0.00		0.09
Control Delay	7.9	8.0		11.6		18.0		14.9
LOS	A	A		B		C		B
Approach Delay				11.6			14.9	
Approach LOS				B			B	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/06/09
Analysis Time Period: PM Peak
Intersection: East 4th Street & I75SB Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75-2015 PM Fourth Street 1
East/West Street: Fourth Street
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	320			170	170
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	355			188	188
Percent Heavy Vehicles	7	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1			1	0
Configuration	L	T				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				70		100
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				77		111
Percent Heavy Vehicles				15		15
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	11						188	
C(m) (vph)	1156						548	
v/c	0.01						0.34	
95% queue length	0.03						1.52	
Control Delay	8.1						15.0-	
LOS	A						B	
Approach Delay							15.0-	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/10/09
Analysis Time Period: PM Peak
Intersection: East 4th Street & Patrol Drive
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75 2015 PM Fourth Street 2
East/West Street: Fourth Street
North/South Street: I-75 Ramp / Patrol Drive
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	270	10	70	320	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	300	11	77	355	0
Percent Heavy Vehicles	9	--	--	12	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	1	1	0
Configuration		LTR		L		TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	140	10	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	155	11	11	11
Percent Heavy Vehicles	7	7	7	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	1	1	0
Configuration		LTR		L		TR

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	L		LTR		L		TR
v (vph)	11	77		166		11		22
C(m) (vph)	1166	1195		641		188		396
v/c	0.01	0.06		0.26		0.06		0.06
95% queue length	0.03	0.21		1.03		0.18		0.18
Control Delay	8.1	8.2		12.6		25.3		14.6
LOS	A	A		B		D		B
Approach Delay				12.6			18.2	
Approach LOS				B			C	

I-75 at Fourth Street

Rehabilitation Option

HCS Analysis

Year 2035

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/06/09
Analysis Time Period: AM Peak
Intersection: East 4th Street & I75SB Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75 2035 AM Fourth Street 1
East/West Street: Fourth Street
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	180			190	70
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	200			211	77
Percent Heavy Vehicles	17	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1			1	0
Configuration	L	T				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				80		130
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				88		144
Percent Heavy Vehicles				12		12
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	11						232	
C(m) (vph)	1193						654	
v/c	0.01						0.35	
95% queue length	0.03						1.60	
Control Delay	8.0						13.5	
LOS	A						B	
Approach Delay							13.5	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/06/09
Analysis Time Period: AM Peak
Intersection: East 4th Street & Patrol Drive
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75 2035 AM Fourth Street 2
East/West Street: Fourth Street
North/South Street: I-75 Ramp / Patrol Drive
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	20	200	40	70	250	10
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	22	222	44	77	277	11
Percent Heavy Vehicles	12	--	--	13	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	1	1	0
Configuration		LTR		L		TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	10	160	0	10	0
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	11	177	0	11	0
Percent Heavy Vehicles	8	8	8	1	1	1
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	1	1	0
Configuration		LTR		L		TR

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	L		LTR		L		TR
v (vph)	22	77		199		0		11
C(m) (vph)	1219	1237		667		209		315
v/c	0.02	0.06		0.30		0.00		0.03
95% queue length	0.06	0.20		1.25		0.00		0.11
Control Delay	8.0	8.1		12.7		22.2		16.8
LOS	A	A		B		C		C
Approach Delay				12.7			16.8	
Approach LOS				B			C	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/06/09
Analysis Time Period: PM Peak
Intersection: East 4th Street & I75 SB Ramp
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75 2035 PM Fourth Street 1
East/West Street: Fourth Street
North/South Street: I-75 SB Ramp
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	390			190	200
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	433			211	222
Percent Heavy Vehicles	7	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	1			1	0
Configuration	L	T				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				90		120
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				100		133
Percent Heavy Vehicles				15		15
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	11						233	
C(m) (vph)	1100						483	
v/c	0.01						0.48	
95% queue length	0.03						2.58	
Control Delay	8.3						19.2	
LOS	A						C	
Approach Delay							19.2	
Approach LOS							C	

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/06/2009
Analysis Time Period: PM Peak
Intersection: East 4th Street & Patrol Drive
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year:
Project ID: ALL-75 2035 PM Fourth Street 2
East/West Street: Fourth Street
North/South Street: I-75 Ramp at Patrol Drive
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	340	130	90	370	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	377	144	100	411	0
Percent Heavy Vehicles	9	--	--	12	--	--
Median Type/Storage	Undivided /					
RT Channelized?		No				
Lanes	0	1	1	1	1	0
Configuration		LT	R	L		TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	10	0	170	10	10	10
Peak Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	11	0	188	11	11	11
Percent Heavy Vehicles	7	7	7	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT	L	LTR			LTR		
v (vph)	11	100	199			33		
C(m) (vph)	1111	996	574			183		
v/c	0.01	0.10	0.35			0.18		
95% queue length	0.03	0.33	1.54			0.64		
Control Delay	8.3	9.0	14.6			29.0		
LOS	A	A	B			D		
Approach Delay			14.6			29.0		
Approach LOS			B			D		

I-75 at SR 309

Rehabilitation Option

HCS Analysis

Year 2015

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/13/09
Period: AM Peak
Project ID: ALL-75-2015 AM OPT0- 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015 AM

N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		560	90	130	890					240		210
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left		P			SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		36.0				34.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1485	3299	0.42	0.45	15.8	B	15.5	B
R	686	1524	0.15	0.45	13.4	B		
Westbound								
L	292	648	0.49	0.45	21.4	C		
T	1485	3299	0.67	0.45	19.7	B	19.9	B
Northbound								
Southbound								
L	1446	3403	0.18	0.43	14.6	B		
							15.5	B
R	733	1725	0.32	0.43	16.4	B		

Intersection Delay = 17.6 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/12/09
Analysis Time Period: AM Peak
Intersection: Kibby & I-75 NB Ramps
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75-2015 AM - OPT0 - 38
East/West Street: Kibby
North/South Street: I-75 NB Ramps
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	40	720	40		990	230
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	44	800	44		1100	255
Percent Heavy Vehicles	6	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0		2	0
Configuration	L	T	TR		T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume					0	30
Peak Hour Factor, PHF					0.90	0.90
Hourly Flow Rate, HFR					0	33
Percent Heavy Vehicles					9	9
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes					1	0
Configuration						TR

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L							TR
v (vph)	44							33
C(m) (vph)	620							760
v/c	0.07							0.04
95% queue length	0.23							0.14
Control Delay	11.2							10.0-
LOS	B							A
Approach Delay							10.0-	
Approach LOS							A	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: Year 2015 Option 0
Date: 02/13/09
Period: AM Peak
Project ID: ALL- 75- 2015 - AM - OPT0 - 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : Baseline
N/S St: I75N Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	2	1	0	1	0	1
LGConfig		LT			TR		L	TR		L		R
Volume	0	720			1040	10	170	10	240	20		10
Lane Width		12.0			12.0		12.0	12.0		12.0		12.0
RTOR Vol						0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	P		
Thru	P				Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	36.0				34.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1536	3413	0.52	0.45	17.1	B	17.1	B
Westbound								
TR	1534	3408	0.76	0.45	22.0	C	22.0	C
Northbound								
L	1354	3187	0.14	0.43	14.3	B		
TR	628	1478	0.44	0.43	18.5	B	16.8	B
Southbound								
L	424	997	0.05	0.43	13.8	B		
							13.6	B
R	680	1599	0.02	0.43	13.4	B		

Intersection Delay = 19.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: Year 2015 Option 0
Date: 02/13/09
Period: PM Peak
Project ID: ALL-75-2015 - PM OPT0 -35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015 - OPT0

N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		1260	200	170	1020					300		130
Lane Width		12.0	12.0	12.0	12.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	P		
Thru	P	P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	9.0	37.0				20.0		
Yellow	3.5	4.0				4.0		
All Red	0.5	1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1579	3413	0.89	0.46	27.3	C	25.6	C
R	705	1524	0.31	0.46	14.7	B		
Westbound								
L	282	1703	0.67	0.64	21.7	C		
T	2133	3413	0.53	0.63	9.4	A	11.1	B
Northbound								
Southbound								
L	851	3403	0.39	0.25	26.3	C		
							26.4	C
R	431	1725	0.33	0.25	26.6	C		

Intersection Delay = 20.1 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/13/09
Analysis Time Period:
Intersection: Kibby & I-75 NB Ramps
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015 - OPT0
Project ID: ALL-75-2015 PM - OPT0-38
East/West Street: SR 309 - Kibby
North/South Street: I-75 NB Ramps
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	110	1400	50		1150	360
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	122	1555	55		1277	400
Percent Heavy Vehicles	6	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0		2	0
Configuration	L	T	TR		T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10	0	40
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				11	0	44
Percent Heavy Vehicles				9	9	9
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LTR	
v (vph)	122						55	
C(m) (vph)	407						94	
v/c	0.30						0.59	
95% queue length	1.24						2.72	
Control Delay	17.6						87.1	
LOS	C						F	
Approach Delay							87.1	
Approach LOS							F	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 09/23/2008
Period: PM Peak
Project ID: ALL-75-2015 - PM - OPT0 - 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT Distrct 1
Year : 2015
N/S St: I75N Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	2	1	0	1	0	1
LGConfig		LT			TR		L	TR		L		R
Volume	10	1400			1350	10	120	10	160	90		40
Lane Width		12.0			12.0		12.0	12.0		12.0		12.0
RTOR Vol						0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	P		
Thru	P				Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	42.0				28.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1682	3204	0.93	0.52	28.5	C	28.5	C
Westbound								
TR	1790	3409	0.84	0.52	21.3	C	21.3	C
Northbound								
L	1115	3187	0.12	0.35	17.9	B		
TR	519	1483	0.36	0.35	21.3	C	19.9	B
Southbound								
L	404	1154	0.25	0.35	20.0-	B		
							19.3	B
R	560	1599	0.08	0.35	17.7	B		

Intersection Delay = 24.2 (sec/veh) Intersection LOS = C

I-75 at SR 309

Rehabilitation Option

HCS Analysis

Year 2035

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 09/23/2008
Analysis Time Period: AM Peak
Intersection: Kibby & I-75 NB Ramps
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035 - OPT0
Project ID: ALL-75-2035 AM OPT0-38
East/West Street: SR 309 - Kibby
North/South Street:
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	50	810	50		1110	260
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	55	900	55		1233	288
Percent Heavy Vehicles	6	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0		2	0
Configuration	L	T	TR		T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				0	0	30
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				0	0	33
Percent Heavy Vehicles				9	9	9
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LTR	
v (vph)	55						33	
C(m) (vph)	474						699	
v/c	0.12						0.05	
95% queue length	0.39						0.15	
Control Delay	13.6						10.4	
LOS	B						B	
Approach Delay							10.4	
Approach LOS							B	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/13/09
Period: AM Peak
Project ID: ALL- 75- 2035 AM- OPT0 - 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035 - OPT0
N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		640	90	140	1000					270		260
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	P		
Thru	P	P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	29.0				26.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1196	3299	0.59	0.36	22.9	C	22.3	C
R	552	1524	0.18	0.36	18.1	B		
Westbound								
L	390	1703	0.40	0.55	11.0	B		
T	1814	3299	0.61	0.55	13.8	B	13.4	B
Northbound								
Southbound								
L	1106	3403	0.27	0.32	20.6	C		
							22.9	C
R	561	1725	0.52	0.32	25.2	C		

Intersection Delay = 18.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/13/09
Period: AM Peak
Project ID: ALL-75- 2035- AM - OPT0-53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035 - OPT0
N/S St: I75N Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	2	1	0	1	0	1
LGConfig	L	T			TR		L	TR		L		R
Volume	10	810			1150	10	210	10	250	20		10
Lane Width	12.0	12.0			12.0		12.0	12.0		12.0		12.0
RTOR Vol						0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	A	A	
Thru	P				Thru		A	
Right					Right		A	
Peds					Peds			
WB Left					SB Left	A	A	
Thru	P				Thru			
Right	P				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	35.0					10.0	20.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	90	205	0.12	0.44	16.1	B		
T	1493	3413	0.60	0.44	19.0	B	19.0	B
Westbound								
TR	1491	3408	0.86	0.44	27.3	C	27.3	C
Northbound								
L	1394	3187	0.17	0.44	13.7	B		
TR	370	1478	0.78	0.25	38.3	D	27.3	C
Southbound								
L	408	1787	0.05	0.44	13.7	B		
							16.7	B
R	400	1599	0.03	0.25	22.7	C		

Intersection Delay = 24.4 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 3/2/2009
Period: PM Peak
Project ID: ALL-75-2035 PM OPT0 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035

N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		1440	240	170	1150					350		170
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	P		
Thru	P	P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	8.0	40.0			18.0			
Yellow	3.5	4.0			3.5			
All Red	1.0	1.0			1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1650	3299	0.97	0.50	35.5	D	32.3	C
R	762	1524	0.35	0.50	13.4	B		
Westbound								
L	260	1703	0.73	0.66	28.0	C		
T	2165	3299	0.59	0.66	8.9	A	11.4	B
Northbound								
Southbound								
L	766	3403	0.51	0.22	29.5	C		
							30.1	C
R	388	1725	0.49	0.22	31.3	C		

Intersection Delay = 24.1 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/13/09
Analysis Time Period: PM Peak
Intersection: Kibby & I-75 NB ramps
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035 - OPT0
Project ID: ALL-75-2035 PM - OPT0 - 38
East/West Street: SR 309 - Kibby
North/South Street:
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	150	1580	60		1280	420
Peak-Hour Factor, PHF	0.90	0.90	0.90		0.90	0.90
Hourly Flow Rate, HFR	166	1755	66		1422	466
Percent Heavy Vehicles	6	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2	0		2	0
Configuration	L	T	TR		T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10	0	40
Peak Hour Factor, PHF				0.90	0.90	0.90
Hourly Flow Rate, HFR				11	0	44
Percent Heavy Vehicles				9	9	9
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LTR	
v (vph)	166						55	
C(m) (vph)	336						0	
v/c	0.49							
95% queue length	2.61							
Control Delay	25.7							
LOS	D						F	
Approach Delay								
Approach LOS								

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75-2035 - PM OPT0 -53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I75N Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	2	1	0	1	0	1
LGConfig	L	T			TR		L	TR		L		R
Volume	10	1580			1510	10	150	10	170	90		40
Lane Width	12.0	12.0			12.0		12.0	12.0		12.0		12.0
RTOR Vol						0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	A	A	
Thru	P				Thru		A	
Right					Right		A	
Peds					Peds			
WB Left					SB Left	A	A	
Thru	P				Thru			
Right	P				Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	43.0					7.0	15.0	
Yellow	4.0					4.0	4.0	
All Red	1.0					1.0	1.0	

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	90	167	0.12	0.54	11.9	B		
T	1834	3413	0.96	0.54	30.7	C	30.6	C
Westbound								
TR	1832	3409	0.92	0.54	26.2	C	26.2	C
Northbound								
L	1076	3187	0.16	0.34	18.6	B		
TR	278	1482	0.72	0.19	39.3	D	29.9	C
Southbound								
L	333	1787	0.30	0.34	19.6	B		
							21.9	C
R	300	1599	0.15	0.19	27.4	C		

Intersection Delay = 28.3 (sec/veh) Intersection LOS = C

I-75 at SR 309

Option 1

HCS Analysis

Year 2015

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2015 AM - OPT1- 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	2	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		560	90	130	890					240		210
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P	P		Thru			
Right		P	P		Right			
Peds					Peds			
WB Left	A				SB Left	A		
Thru	A	P	P		Thru			
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	15.0	15.0	10.0		25.0			
Yellow	4.0	4.0	4.0		4.0			
All Red	1.0	1.0	1.0		1.0			

Cycle Length: 85.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1164	3299	0.53	0.35	23.7	C	23.2	C
R	538	1524	0.19	0.35	19.8	B		
Westbound								
L	584	3307	0.25	0.18	30.4	C		
T	1941	3299	0.51	0.59	10.5	B	13.0	B
Northbound								
Southbound								
L	1001	3403	0.27	0.29	23.1	C		
							24.1	C
R	507	1725	0.46	0.29	25.1	C		

Intersection Delay = 18.5 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2015 AM - OPT1 - 38
E/W St: Kibby

Inter.: Kibby & I-75 NB Ramps
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: I-75 NB Ramps

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	2	0	0	2	1	2	0	1	0	0	0
LGConfig	L	T			T	R	L		R			
Volume	70	730			850	250	170		250			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left			A		NB Left	A			
Thru	P	P	A		Thru				
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru	P	P			Thru				
Right	P	P			Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	20.0	22.0	15.0			38.0			
Yellow	4.0	4.0	4.0			4.0			
All Red	1.0	1.0	1.0			1.0			

Cycle Length: 115.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	431	3307	0.18	0.13	44.7	D		
T	1988	3413	0.41	0.58	13.3	B	16.0	B
Westbound								
T	1395	3413	0.68	0.41	30.4	C	29.6	C
R	623	1524	0.45	0.41	26.9	C		
Northbound								
L	1053	3187	0.18	0.33	27.5	C		
							31.0	C
R	485	1468	0.57	0.33	33.5	C		
Southbound								

Intersection Delay = 25.2 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 03/23/2009
Period: AM Peak
Project ID: ALL-75-2015- AM OPT1- 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: Saratoga Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	1	0	1
LGConfig	L	T			TR					L		R
Volume	10	960			1020	30				20		70
Lane Width	12.0	12.0			12.0					12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 85.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	151	285	0.07	0.53	10.7	B		
T	1807	3413	0.59	0.53	15.1	B	15.1	B
Westbound								
TR	1799	3398	0.65	0.53	16.2	B	16.2	B
Northbound								
Southbound								
L	631	1787	0.03	0.35	18.1	B		
							19.0	B
R	564	1599	0.14	0.35	19.2	B		

Intersection Delay = 15.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75-2015- OPT1 - 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015

N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	2	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		1260	200	170	1020					300		130
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P	P			Thru			
Right	P	P			Right			
Peds					Peds			
WB Left			A		SB Left	A		
Thru	P	P	A		Thru			
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	35.0	10.0	10.0		30.0			
Yellow	4.0	4.0	4.0		4.0			
All Red	1.0	1.0	1.0		1.0			

Cycle Length: 105.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1601	3363	0.87	0.48	31.7	C	29.8	C
R	740	1553	0.30	0.48	17.8	B		
Westbound								
L	321	3370	0.59	0.10	48.4	D		
T	2082	3363	0.54	0.62	11.8	B	17.0	B
Northbound								
Southbound								
L	927	3246	0.36	0.29	30.1	C		
							30.0	C
R	470	1645	0.31	0.29	29.7	C		

Intersection Delay = 24.9 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: Year 2015 Option 1 Configuratio
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75-2015-PM - OPT1 -38
E/W St: Kibby

Inter.: Kibby & I-75 NB Ramps
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: I-75 NB Ramps

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	2	0	0	2	1	2	0	1	0	0	0
LGConfig	L	T			T	R	L		R			
Volume	140	1420			1070	370	120		170			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left		A	A		NB Left	A			
Thru	P	A	A		Thru				
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru	P				Thru				
Right	P				Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	38.0	11.0	11.0			20.0			
Yellow	4.0	4.0	4.0			4.0			
All Red	1.0	1.0	1.0			1.0			

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	910	3370	0.17	0.27	28.0	C		
T	2435	3478	0.65	0.70	2.0	A	4.3	A
Westbound								
T	1322	3478	0.90	0.38	39.2	D	37.5	D
R	590	1553	0.70	0.38	32.8	C		
Northbound								
L	626	3130	0.21	0.20	33.6	C		
							38.6	D
R	288	1442	0.66	0.20	42.2	D		
Southbound								

Intersection Delay = 21.9 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75-2015 PM - OPT1 - 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: Saratoga Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	1	0	1
LGConfig	L	T			TR					L		R
Volume	20	1550			1310	50				100		110
Lane Width	12.0	12.0			12.0					12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	37.0					18.0		
Yellow	4.0					4.0		
All Red	1.0					1.0		

Cycle Length: 65.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	113	198	0.19	0.57	10.6	B		
T	1980	3478	0.87	0.57	17.5	B	17.4	B
Westbound								
TR	1969	3459	0.77	0.57	13.7	B	13.7	B
Northbound								
Southbound								
L	495	1787	0.22	0.28	19.2	B		
							19.6	B
R	443	1599	0.28	0.28	19.9	B		

Intersection Delay = 15.9 (sec/veh) Intersection LOS = B

I-75 at SR 309

Option 1

HCS Analysis

Year 2035

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 09/23/2008
Period: AM Peak
Project ID: ALL-75-2035 - AM - OPT1 - 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	2	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		640	90	140	1000					270		260
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P	P			Thru			
Right	P	P			Right			
Peds					Peds			
WB Left					SB Left	A		
Thru	P	P			Thru			
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	23.0	10.0				32.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1567	3299	0.45	0.47	15.0	B	14.7	B
R	724	1524	0.14	0.47	12.2	B		
Westbound								
L				0.00				
T	1567	3299	0.71	0.47	19.4	B		
Northbound								
Southbound								
L	1361	3403	0.22	0.40	15.9	B		
							16.8	B
R	690	1725	0.42	0.40	17.7	B		

Intersection Delay = (sec/veh) Intersection LOS =

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2035- AM - OPT1 - 38
E/W St: Kibby

Inter.: Kibby & I-75 NB Ramps
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I-75 NB Ramps

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	2	0	0	2	1	2	0	1	0	0	0
LGConfig	L	T			T	R	L		R			
Volume	100	810			930	270	210		260			
Lane Width	12.0	12.0			12.0	12.0	12.0		12.0			
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru	P	A			Thru			
Right					Right	A		
Peds					Peds			
WB Left					SB Left			
Thru	P				Thru			
Right	P				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	33.0	8.0				26.0		
Yellow	3.5	3.5				4.0		
All Red	0.5	0.5				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	331	3307	0.34	0.10	34.1	C		
T	1920	3413	0.47	0.56	10.6	B	13.2	B
Westbound								
T	1408	3413	0.73	0.41	23.2	C	22.4	C
R	629	1524	0.48	0.41	19.8	B		
Northbound								
L	1036	3187	0.22	0.32	19.8	B		
							22.6	C
R	477	1468	0.61	0.32	24.9	C		
Southbound								

Intersection Delay = 19.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2035-AM -OPT1 - 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: Saratoga Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	1	0	1
LGConfig	L	T			TR					L		R
Volume	10	1060			1130	30				20		70
Lane Width	12.0	12.0			12.0					12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	42.0				28.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	116	221	0.09	0.52	11.1	B		
T	1792	3413	0.66	0.52	15.7	B	15.6	B
Westbound								
TR	1785	3400	0.72	0.52	17.1	B	17.1	B
Northbound								
Southbound								
L	625	1787	0.04	0.35	17.2	B		
							18.1	B
R	560	1599	0.14	0.35	18.3	B		

Intersection Delay = 16.5 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2035 AM - OPT1 - 8
E/W St: Kibby Road - SR 309

Inter.: Kibby Road - SR 309 & Leonard
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: Bellefontaine Ave.

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	1	1	0	0	1	0	0	1	0
LGConfig		TR		L	TR			LTR			LTR	
Volume		220	10	10	350	60	10	0	10	80	0	30
Lane Width		12.0		12.0	12.0			12.0			12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left		P			SB Left	A		
Thru		P			Thru	A		
Right		P			Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	31.0	31.0				18.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 95.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	1107	3391	0.23	0.33	23.8	C	23.8	C
Westbound								
L	346	1060	0.03	0.33	23.7	C		
TR	572	1753	0.80	0.33	41.1	D	40.7	D
Northbound								
LTR	275	1449	0.08	0.19	32.3	C	32.3	C
Southbound								
LTR	252	1331	0.48	0.19	35.8	D	35.8	D

Intersection Delay = 34.8 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL- 75- 2035 PM - OPT1 - 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	2	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		1440	240	170	1150					350		170
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P	P			Thru			
Right	P	P			Right			
Peds					Peds			
WB Left					SB Left	A		
Thru	P	P			Thru			
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	30.0				25.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1892	3363	0.85	0.56	19.5	B	18.1	B
R	874	1553	0.31	0.56	10.1	B		
Westbound								
L				0.00				
T	1892	3363	0.68	0.56	14.3	B		
Northbound								
Southbound								
L	1014	3246	0.38	0.31	21.7	C		
							21.8	C
R	514	1645	0.37	0.31	21.8	C		
	Intersection Delay =			(sec/veh)	Intersection LOS =			

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75-2035-PM-OPT1- 38
E/W St: Kibby

Inter.: Kibby & I-75 NB Entrance Ramp
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I-75 NB Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	1	1	0	0	0	0
LGConfig	L	T			T	R	L	TR				
Volume	210	1580			1170	410	150	0	180			
Lane Width	12.0	12.0			12.0	12.0	12.0	12.0				
RTOR Vol					0			0				

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4		5	6	7	8
EB	Left	A				NB	Left A			
	Thru	A	P				Thru			
	Right						Right A			
	Peds						Peds			
WB	Left					SB	Left			
	Thru		P				Thru			
	Right		P				Right			
	Peds						Peds			
NB	Right					EB	Right			
SB	Right					WB	Right			
Green		13.0	33.0				21.0			
Yellow		3.5	3.5				4.0			
All Red		0.5	0.5				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	282	1736	0.83	0.16	50.4	D		
T	2174	3478	0.81	0.63	8.2	A	13.1	B
Westbound								
T	1435	3478	0.91	0.41	29.2	C	29.2	C
R	641	1553	0.71	0.41	29.0	C		
Northbound								
L	423	1612	0.39	0.26	24.9	C		
TR	0	1442		0.00				
Southbound								

Intersection Delay = (sec/veh) Intersection LOS =

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75- 2035 PM- OPT1 - 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: Saratoga Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	0	0	1	0	1
LGConfig	L	T			TR					L		R
Volume	20	1740			1470	50				100		110
Lane Width	12.0	12.0			12.0					12.0		12.0
RTOR Vol						0						0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	48.0					24.0		
Yellow	3.5					3.5		
All Red	0.5					0.5		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	91	152	0.24	0.60	13.7	B		
T	2087	3478	0.93	0.60	23.0	C	22.9	C
Westbound								
TR	2077	3461	0.81	0.60	16.1	B	16.1	B
Northbound								
Southbound								
L	536	1787	0.21	0.30	21.8	C		
							22.1	C
R	480	1599	0.25	0.30	22.5	C		

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

I-75 at SR 309

Option 2

HCS Analysis

Year 2015

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2015 AM- OPT2- 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015

N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		560	90	130	890					240		210
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	P		
Thru	P	P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	35.0				30.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1283	3299	0.48	0.39	22.0	C	21.5	C
R	593	1524	0.17	0.39	18.6	B		
Westbound								
L	420	1703	0.34	0.56	11.2	B		
T	1833	3299	0.54	0.56	13.8	B	13.5	B
Northbound								
Southbound								
L	1134	3403	0.24	0.33	22.2	C		
							23.6	C
R	575	1725	0.41	0.33	25.2	C		

Intersection Delay = 18.1 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/16/09
Analysis Time Period: AM Peak
Intersection: Kibby & Dean Road
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75-2015-AM -OPT2 - 38
East/West Street: Kibby
North/South Street:
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	790			1000	10
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	877			1111	11
Percent Heavy Vehicles	6	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	2			2	0
Configuration	L	T			T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10		20
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				11		22
Percent Heavy Vehicles				9		9
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	11						33	
C(m) (vph)	740						356	
v/c	0.01						0.09	
95% queue length	0.05						0.30	
Control Delay	9.9						16.1	
LOS	A						C	
Approach Delay							16.1	
Approach LOS							C	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2015-AM- OPT2- 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: I75N Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	2	2	0	2	1	0	1	1	0
LGConfig	L	T	R	L	TR		L	TR		L	TR	
Volume	10	720	90	220	810	10	170	10	240	30	30	30
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left A	A		
Thru		P			Thru	A	A	
Right		P			Right	A	A	
Peds					Peds			
WB Left	A				SB Left A		P	
Thru	P	P			Thru		P	
Right	P	P			Right		P	
Peds					Peds			
NB Right					EB Right A	A		
SB Right					WB Right			
Green	10.0	32.0			10.0	10.0	18.0	
Yellow	4.0	4.0			4.0	4.0	4.0	
All Red	1.0	1.0			1.0	1.0	1.0	

Cycle Length: 105.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	166	545	0.07	0.30	26.7	C		
T	1040	3413	0.77	0.30	38.6	D	35.3	D
R	900	1524	0.11	0.59	9.5	A		
Westbound								
L	315	3307	0.77	0.10	57.8	E		
TR	1525	3407	0.60	0.45	23.6	C	30.8	C
Northbound								
L	759	3187	0.25	0.24	32.6	C		
TR	465	1478	0.60	0.31	32.5	C	32.5	C
Southbound								
L	360	1787	0.09	0.27	28.9	C		
TR	298	1740	0.22	0.17	39.2	D	35.7	D

Intersection Delay = 32.9 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75-2015 PM - OPT2 - 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015
N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		1260	200	170	1020					300		130
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	P		
Thru	P	P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	12.0	58.0				35.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1625	3363	0.86	0.48	33.7	C	31.8	C
R	751	1553	0.30	0.48	19.7	B		
Westbound								
L	235	1736	0.80	0.63	51.4	D		
T	2102	3363	0.54	0.63	13.7	B	19.1	B
Northbound								
Southbound								
L	947	3246	0.35	0.29	34.6	C		
							34.6	C
R	480	1645	0.30	0.29	34.6	C		

Intersection Delay = 27.3 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/16/09
Analysis Time Period: PM Peak
Intersection: Kibby & Dean Road
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2015
Project ID: ALL-75-2015 PM - OPT2- 38
East/West Street: Kibby
North/South Street:
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	1550			1150	40
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	1722			1277	44
Percent Heavy Vehicles	4	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2			2	0
Configuration	L	T			T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10		40
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				11		44
Percent Heavy Vehicles				5		5
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	11						55	
C(m) (vph)	584						274	
v/c	0.02						0.20	
95% queue length	0.06						0.73	
Control Delay	11.3						21.4	
LOS	B						C	
Approach Delay							21.4	
Approach LOS							C	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: ALL- 75-2015 PM - OPT2- 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District1
Year : 2015
N/S St: I75N Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	2	2	0	2	1	0	1	1	0
LGConfig	L	T	R	L	TR		L	TR		L	TR	
Volume	20	1430	110	370	980	40	120	10	160	90	30	90
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left		P			NB	Left	A			
	Thru		P				Thru		A		
	Right		P				Right		A		
	Peds						Peds				
WB	Left	A				SB	Left	A	P		
	Thru	P	P				Thru		P		
	Right	P	P				Right		P		
	Peds						Peds				
NB	Right					EB	Right	A			
SB	Right					WB	Right				
Green		12.0	52.0					11.0	20.0		
Yellow		4.0	4.0					4.0	4.0		
All Red		1.0	1.0					1.0	1.0		

Cycle Length: 115.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	205	453	0.11	0.45	19.2	B		
T	1573	3478	1.01	0.45	56.7	E	53.0	D
R	918	1553	0.13	0.59	10.5	B		
Westbound								
L	352	3370	1.17	0.10	153.3	F		
TR	2075	3458	0.55	0.60	14.7	B	51.6	D
Northbound								
L	299	3130	0.44	0.10	50.2	D		
TR	253	1457	0.75	0.17	56.6	E	54.0	D
Southbound								
L	316	1787	0.32	0.31	29.9	C		
TR	290	1669	0.46	0.17	47.8	D	40.1	D

Intersection Delay = 51.7 (sec/veh) Intersection LOS = D

I-75 at SR 309

Option 2

HCS Analysis

Year 2035

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM Peak
Project ID: ALL-75-2035- AM -OPT2- 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035

N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		640	90	140	1000					270		260
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	P		
Thru	P	P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	28.0			27.0			
Yellow	4.0	4.0			4.0			
All Red	1.0	1.0			1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1155	3299	0.62	0.35	24.0	C	23.4	C
R	533	1524	0.19	0.35	18.9	B		
Westbound								
L	379	1703	0.41	0.54	11.6	B		
T	1773	3299	0.63	0.54	14.6	B	14.2	B
Northbound								
Southbound								
L	1149	3403	0.26	0.34	19.8	B		
							21.9	C
R	582	1725	0.50	0.34	24.1	C		

Intersection Delay = 18.7 (sec/veh) Intersection LOS = B

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/16/09
Analysis Time Period: AM Peak
Intersection: Kibby & Dean Road
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75-2035- AM -OPT2 - 38
East/West Street: Kibby Road
North/South Street:
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	900			1120	10
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	1000			1244	11
Percent Heavy Vehicles	6	--	--		--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	1	2			2	0
Configuration	L	T			T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10		20
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				11		22
Percent Heavy Vehicles				9		9
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			No /
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	11						33	
C(m) (vph)	609						245	
v/c	0.02						0.13	
95% queue length	0.06						0.46	
Control Delay	11.0						22.0	
LOS	B						C	
Approach Delay							22.0	
Approach LOS							C	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: AM
Project ID: ALL-75-2035- AM - OPT2 - 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: Saratoga Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	2	2	0	2	1	0	1	1	0
LGConfig	L	T	R	L	TR		L	TR		L	TR	
Volume	10	810	90	250	890	10	210	10	250	30	30	30
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	A		
Thru		P			Thru	A		
Right		P			Right	A		
Peds					Peds			
WB Left	A				SB Left		A	
Thru	P	P			Thru		A	
Right	P	P			Right		A	
Peds					Peds			
NB Right					EB Right	A		
SB Right					WB Right			
Green	9.0	24.0				19.0	10.0	
Yellow	3.5	3.5				3.5	3.5	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	155	515	0.07	0.30	20.9	C		
T	1024	3413	0.88	0.30	37.3	D	34.1	C
R	905	1524	0.11	0.59	7.1	A		
Westbound								
L	372	3307	0.75	0.11	42.5	D		
TR	1597	3407	0.63	0.47	17.8	B	23.2	C
Northbound								
L	832	3505	0.28	0.24	25.1	C		
TR	386	1626	0.75	0.24	36.2	D	31.2	C
Southbound								
L	223	1787	0.15	0.13	31.5	C		
TR	218	1740	0.30	0.13	32.6	C	32.2	C

Intersection Delay = 28.7 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/16/09
Period: PM Peak
Project ID: AL-75-2035- PM - OPT2- 35
E/W St: Kibby

Inter.: Kibby & I75S Exit Ramp West
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I75S Entrance Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	2	0	1
LGConfig		T	R	L	T					L		R
Volume		1440	240	170	1150					350		170
Lane Width		11.0	12.0	12.0	11.0					12.0		15.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	P		
Thru	P	P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	11.0	48.0			21.0			
Yellow	4.0	4.0			4.0			
All Red	1.0	1.0			1.0			

Cycle Length: 95.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1699	3363	0.94	0.51	39.5	D	37.4	D
R	785	1553	0.34	0.51	24.8	C		
Westbound								
L	278	1736	0.68	0.67	30.3	C		
T	2266	3363	0.56	0.67	9.2	A	11.9	B
Northbound								
Southbound								
L	718	3246	0.54	0.22	35.7	D		
							36.4	D
R	364	1645	0.52	0.22	37.8	D		

Intersection Delay = 27.7 (sec/veh) Intersection LOS = C

HCS+: Unsignalized Intersections Release 5.21

TWO-WAY STOP CONTROL SUMMARY

Analyst: JB
Agency/Co.: PB
Date Performed: 02/16/09
Analysis Time Period: PM Peak
Intersection: Kibby & Dean Road
Jurisdiction: ODOT District 1
Units: U. S. Customary
Analysis Year: 2035
Project ID: ALL-75- 2035 PM - OPT2 - 38
East/West Street: Kibby Road
North/South Street:
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	10	1780			1280	40
Peak-Hour Factor, PHF	0.90	0.90			0.90	0.90
Hourly Flow Rate, HFR	11	1977			1422	44
Percent Heavy Vehicles	6	--	--		--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	1	2			2	0
Configuration	L	T			T	TR
Upstream Signal?		Yes			Yes	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				10		40
Peak Hour Factor, PHF				0.90		0.90
Hourly Flow Rate, HFR				11		44
Percent Heavy Vehicles				9		9
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0		0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	L						LR	
v (vph)	11						55	
C(m) (vph)	489						166	
v/c	0.02						0.33	
95% queue length	0.07						1.35	
Control Delay	12.5						37.1	
LOS	B						E	
Approach Delay							37.1	
Approach LOS							E	

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: Year 2035 Option 2 Configuratio
Date: 02/16/09
Period: PM Peak
Project ID: ALL-75-2035 PM - OPT2 - 53
E/W St: Kibby

Inter.: Kibby & Saratoga Avenue
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035
N/S St: I75N Exit Ramp

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	2	2	0	2	1	0	1	1	0
LGConfig	L	T	R	L	TR		L	TR		L	TR	
Volume	20	1580	190	430	1080	40	150	10	170	90	30	90
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	A		
Thru		P			Thru		A	
Right		P			Right		A	
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru	P	P			Thru		A	
Right	P	P			Right		A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	13.0	58.0				10.0	19.0	
Yellow	4.0	4.0				4.0	4.0	
All Red	1.0	1.0				1.0	1.0	

Cycle Length: 120.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	192	397	0.11	0.48	18.2	B		
T	1681	3478	1.04	0.48	65.6	E	60.2	E
R	751	1553	0.28	0.48	19.5	B		
Westbound								
L	365	3370	1.31	0.11	211.2	F		
TR	2191	3460	0.57	0.63	13.7	B	68.5	E
Northbound								
L	261	3130	0.64	0.08	58.5	E		
TR	231	1456	0.87	0.16	76.6	E	68.4	E
Southbound								
L	262	1787	0.38	0.28	34.3	C		
TR	264	1669	0.50	0.16	47.7	D	42.0	D

Intersection Delay = 63.2 (sec/veh) Intersection LOS = E

I-75 at SR 81

Option 1

HCS Analysis

Year 2015

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/12/2009
Period: AM Peak
Project ID: ALL-75-2015-AM REV1 - 70
E/W St: SR81E

Inter.: SR81E & I-75 NB Ramps
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015

N/S St: I75N EB EXIT

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	2	0	1	0	0	0
LGConfig	L	T			TR		L		R			
Volume	70	310			590	30	280		200			
Lane Width	12.0	12.0			12.0		12.0		12.0			
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	P	P			NB Left	A			
Thru	P	P			Thru				
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru		P			Thru				
Right		P			Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	10.0	25.5				21.0			
Yellow	3.5	3.5				3.5			
All Red	1.0	1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	401	1583	0.19	0.57	9.7	A		
T	1813	3173	0.19	0.57	7.4	A	7.9	A
Westbound								
TR	1148	3151	0.60	0.36	20.4	C	20.4	C
Northbound								
L	931	3102	0.33	0.30	19.3	B		
							20.2	C
R	429	1429	0.52	0.30	21.4	C		
Southbound								

Intersection Delay = 17.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: 2015 Option 1 - AM Peak
Date: 02/12/09
Period: AM Peak
Project ID: ALL-75-2015 AM REV1 - 77
E/W St: SR81E

Inter.: SR81E & I75S EXIT RAMP
Area Type: All other areas
Jurisd:
Year : 2015 Option 1
N/S St: I75S ENTRANCE WB

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	1	0	1
LGConfig		T	R	L	T					L		R
Volume		340	300	150	720					40		230
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	A		
Thru	P	P			Thru			
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	24.0				21.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1079	3146	0.35	0.34	18.1	B	22.6	C
R	481	1404	0.69	0.34	27.8	C		
Westbound								
L	514	1570	0.32	0.56	8.3	A		
T	1753	3146	0.46	0.56	10.1	B	9.8	A
Northbound								
Southbound								
L	463	1543	0.10	0.30	17.7	B		
							23.0	C
R	414	1380	0.62	0.30	23.9	C		

Intersection Delay = 16.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 09/23/2008
Period: PM Peak
Project ID: ALL-75-2015 PM - REV1- 70
E/W St: SR81E

Inter.: SR81E & I75N ENTRANCE
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015 Option 1

N/S St: I75N EB EXIT

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	2	0	1	0	0	0
LGConfig	L	T			TR		L		R			
Volume	130	590			620	40	320		270			
Lane Width	12.0	12.0			12.0		12.0		12.0			
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	P	P			NB Left	A			
Thru	P	P			Thru				
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru		P			Thru				
Right		P			Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	12.0	23.0				20.0			
Yellow	4.0	4.0				4.0			
All Red	1.0	1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	403	1570	0.36	0.57	11.1	B		
T	1798	3146	0.36	0.57	8.7	A	9.1	A
Westbound								
TR	1033	3145	0.71	0.33	24.7	C	24.7	C
Northbound								
L	886	3102	0.40	0.29	20.5	C		
							24.6	C
R	408	1429	0.74	0.29	29.4	C		
Southbound								

Intersection Delay = 19.0 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 09/23/2008
Period: PM Peak
Project ID: ALL-75-2015 PM- REV1 -77
E/W St: SR81E

Inter.: SR81E & I75S EXIT RAMP
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2015 Option 1

N/S St: I75S ENTRANCE WB

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	1	0	1
LGConfig		T	R	L	T					L		R
Volume		670	420	160	780					50		310
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		A			Thru			
Right		A			Right			
Peds					Peds			
WB Left		A			SB Left	A		
Thru		A			Thru			
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		26.0				24.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1363	3146	0.55	0.43	13.1	B	15.9	B
R	608	1404	0.77	0.43	20.4	C		
Westbound								
L	221	511	0.81	0.43	34.0	C		
T	1375	3173	0.63	0.43	14.2	B	17.6	B
Northbound								
Southbound								
L	617	1543	0.09	0.40	11.3	B		
							15.8	B
R	552	1380	0.62	0.40	16.6	B		

Intersection Delay = 16.5 (sec/veh) Intersection LOS = B

I-75 at SR 81

Option 1

HCS Analysis

Year 2035

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 09/23/2008
Period: AM Peak
Project ID: ALL-75-2035 AM - REV1 - 70
E/W St: SR81E

Inter.: SR81E & I-75 NB Ramps
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035 Option 1
N/S St: I75N EB EXIT

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	1	0	1	0	0	0
LGConfig	L	T			TR		L		R			
Volume	80	340			680	30	310		240			
Lane Width	12.0	12.0			12.0		12.0		12.0			
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	P	P			NB Left	A			
Thru	P	P			Thru				
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru		P			Thru				
Right		P			Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	10.0	34.0				31.0			
Yellow	4.0	4.0				4.0			
All Red	1.0	1.0				1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	322	1583	0.28	0.54	13.9	B		
T	1728	3173	0.22	0.54	10.9	B	11.5	B
Westbound								
TR	1191	3153	0.66	0.38	26.1	C	26.1	C
Northbound								
L	550	1597	0.63	0.34	26.9	C		
							26.1	C
R	492	1429	0.54	0.34	25.0	C		
Southbound								

Intersection Delay = 22.4 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 09/23/2008
Period: AM Peak
Project ID: ALL-75-2035-AM REV1 - 77
E/W St: SR81E

Inter.: SR81E & I75S EXIT RAMP
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035 Option 1

N/S St: I75S ENTRANCE WB

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	0	1	1
LGConfig		T	R	L	T						LTR	R
Volume		370	330	190	800					50	0	260
Lane Width		12.0	12.0	12.0	12.0						12.0	12.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	A		
Thru	P	P			Thru	A		
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	36.0				29.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1258	3146	0.33	0.40	19.3	B	23.3	C
R	562	1404	0.65	0.40	27.7	C		
Westbound								
L	490	1570	0.43	0.57	10.8	B		
T	1783	3146	0.50	0.57	12.8	B	12.4	B
Northbound								
Southbound								
LTR	462	1435	0.38	0.32	24.0	C	24.1	C
R	445	1380	0.38	0.32	24.1	C		

Intersection Delay = 18.0 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/12/09
Period: PM Peak
Project ID: ALL-75-2035 PM - REV1 - 70
E/W St: SR81E

Inter.: SR81E & I-75 NB Ramp
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035 Option 1

N/S St: I75N EB EXIT

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	1	0	1	0	0	0
LGConfig	L	T			TR		L		R			
Volume	150	660			720	50	350		330			
Lane Width	12.0	12.0			12.0		12.0		12.0			
RTOR Vol						0			0			

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	P	P			NB Left	A			
Thru	P	P			Thru				
Right					Right	A			
Peds					Peds				
WB Left					SB Left				
Thru		P			Thru				
Right		P			Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	10.0	33.0				32.0			
Yellow	4.0	4.0				4.0			
All Red	1.0	1.0				1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	298	1612	0.56	0.53	21.2	C		
T	1723	3230	0.43	0.53	13.4	B	14.9	B
Westbound								
TR	1173	3198	0.73	0.37	28.7	C	28.7	C
Northbound								
L	583	1641	0.67	0.36	27.4	C		
							28.3	C
R	522	1468	0.70	0.36	29.2	C		
Southbound								

Intersection Delay = 23.6 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.21

Analyst: JB
Agency: PB
Date: 02/12/09
Period: PM Peak
Project ID: ALL-75-2035 PM - REV1 - 77
E/W St: SR81E

Inter.: SR81E & I75S EXIT RAMP
Area Type: All other areas
Jurisd: ODOT District 1
Year : 2035 Option 1
N/S St: I75S ENTRANCE WB

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	1	1	2	0	0	0	0	1	0	1
LGConfig		T	R	L	T					L		R
Volume		750	460	200	870					60		340
Lane Width		12.0	12.0	12.0	12.0					12.0		12.0
RTOR Vol			0									0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
WB Left	A	P			SB Left	A		
Thru	P	P			Thru			
Right					Right	A		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	9.0	35.0				31.0		
Yellow	4.0	4.0				4.0		
All Red	1.0	1.0				1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1267	3259	0.66	0.39	25.3	C	33.2	C
R	566	1455	0.90	0.39	46.1	D		
Westbound								
L	307	1626	0.72	0.54	21.8	C		
T	1774	3259	0.55	0.54	14.5	B	15.9	B
Northbound								
Southbound								
L	531	1543	0.13	0.34	20.3	C		
							33.5	C
R	475	1380	0.80	0.34	35.8	D		

Intersection Delay = 26.3 (sec/veh) Intersection LOS = C