



Appendix F

Highway Capacity Analysis Printouts



ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Osborn Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	AM Peak		

Project ID *Clark County - Lower Valley Pike Safety Study*

East/West Street: *Lower Valley Pike*

North/South Street: *Osborn Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	2	1	1	52	2	3
%Thrus Left Lane						

Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	1	11	33	13	55	0
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	<i>0.90</i>		<i>0.90</i>		<i>0.90</i>		<i>0.90</i>	
Flow Rate (veh/h)	<i>4</i>		<i>62</i>		<i>49</i>		<i>75</i>	
% Heavy Vehicles	<i>0</i>		<i>0</i>		<i>0</i>		<i>0</i>	
No. Lanes	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Geometry Group	<i>1</i>		<i>1</i>		<i>1</i>		<i>1</i>	
Duration, T	<i>0.25</i>							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	<i>0.5</i>		<i>0.9</i>		<i>0.0</i>		<i>0.2</i>	
Prop. Right-Turns	<i>0.3</i>		<i>0.0</i>		<i>0.7</i>		<i>0.0</i>	
Prop. Heavy Vehicle	<i>0.0</i>		<i>0.0</i>		<i>0.0</i>		<i>0.0</i>	
hL-T-adj	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>	<i>0.2</i>
hRT-adj	<i>-0.6</i>	<i>-0.6</i>	<i>-0.6</i>	<i>-0.6</i>	<i>-0.6</i>	<i>-0.6</i>	<i>-0.6</i>	<i>-0.6</i>
hHV-adj	<i>1.7</i>	<i>1.7</i>	<i>1.7</i>	<i>1.7</i>	<i>1.7</i>	<i>1.7</i>	<i>1.7</i>	<i>1.7</i>
hadj, computed	<i>-0.1</i>		<i>0.2</i>		<i>-0.4</i>		<i>0.0</i>	

Departure Headway and Service Time

hd, initial value (s)	<i>3.20</i>		<i>3.20</i>		<i>3.20</i>		<i>3.20</i>	
x, initial	<i>0.00</i>		<i>0.06</i>		<i>0.04</i>		<i>0.07</i>	
hd, final value (s)	<i>4.18</i>		<i>4.32</i>		<i>3.69</i>		<i>4.13</i>	
x, final value	<i>0.00</i>		<i>0.07</i>		<i>0.05</i>		<i>0.09</i>	
Move-up time, m (s)	<i>2.0</i>		<i>2.0</i>		<i>2.0</i>		<i>2.0</i>	
Service Time, t _s (s)	<i>2.2</i>		<i>2.3</i>		<i>1.7</i>		<i>2.1</i>	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	<i>254</i>		<i>312</i>		<i>299</i>		<i>325</i>	
Delay (s/veh)	<i>7.20</i>		<i>7.67</i>		<i>6.88</i>		<i>7.52</i>	
LOS	<i>A</i>		<i>A</i>		<i>A</i>		<i>A</i>	
Approach: Delay (s/veh)	<i>7.20</i>		<i>7.67</i>		<i>6.88</i>		<i>7.52</i>	
LOS	<i>A</i>		<i>A</i>		<i>A</i>		<i>A</i>	
Intersection Delay (s/veh)	<i>7.40</i>							
Intersection LOS	<i>A</i>							

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Osborn Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	PM Peak		

Project ID Clark County - Lower Valley Pike Safety Study

East/West Street: Lower Valley Pike

North/South Street: Osborn Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	2	2	1	29	4	17
% Thrus Left Lane						

Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	3	69	117	21	24	4
% Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	5		54		209		53	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4		0.6		0.0		0.4	
Prop. Right-Turns	0.2		0.3		0.6		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		-0.1		-0.4		0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.00		0.05		0.19		0.05	
hd, final value (s)	4.45		4.35		3.72		4.26	
x, final value	0.01		0.07		0.22		0.06	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.5		2.4		1.7		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	255		304		459		303	
Delay (s/veh)	7.48		7.66		7.74		7.55	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.48		7.66		7.74		7.55	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.69							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pk & Gerlaugh Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	AM Peak		

Project Description <i>Clark County - Lower Valley Pike Safety Study</i>	
East/West Street: <i>Lower Valley Pike</i>	North/South Street: <i>Gerlaugh Rd</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments						
Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	17	44			41	86
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	18	48	0	0	45	95
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LT</i>					<i>TR</i>
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				174		14
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	193	0	15
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					<i>LR</i>	

Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	18						208	
C (m) (veh/h)	1456						818	
v/c	0.01						0.25	
95% queue length	0.04						1.01	
Control Delay (s/veh)	7.5						10.9	
LOS	<i>A</i>						<i>B</i>	
Approach Delay (s/veh)	--	--					10.9	
Approach LOS	--	--					<i>B</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pk & Gerlaugh Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	PM Peak		

Project Description: Clark County - Lower Valley Pike Safety Study	
East/West Street: Lower Valley Pike	North/South Street: Gerlaugh Rd
Intersection Orientation: East-West	Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movement	Eastbound			Westbound		
	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	51	81			61	262
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	56	90	0	0	67	291
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street Movement	Northbound			Southbound		
	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				163		11
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	181	0	12
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)		0			0	
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Configuration	LT						LR	
v (veh/h)	56						193	
C (m) (veh/h)	1212						582	
v/c	0.05						0.33	
95% queue length	0.15						1.45	
Control Delay (s/veh)	8.1						14.2	
LOS	A						B	
Approach Delay (s/veh)	--	--					14.2	
Approach LOS	--	--					B	

Analyst: UBT
 Agency: ms consultants, inc
 Date: 11/20/2008
 Period: AM Peak
 Project ID: Clark County - Lower Valley Pike Safety Study
 E/W St: Lower Valley Pike

Inter.: Lower Valley Pk & Gerlaugh Rd
 Area Type: All other areas
 Jurisd: Clark County Engineer
 Year : 2008
 N/S St: Gerlaugh Road

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	0	0	0	0	0
LGConfig	LT			TR						LR		
Volume	17	44		41	86					174		14
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		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	25.0				25.0			
Yellow	3.5				3.5			
All Red	1.5				1.5			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	730	1753	0.09	0.42	10.9	B	10.9	B
Westbound								
TR	720	1727	0.20	0.42	11.7	B	11.7	B
Northbound								
Southbound								
LR	749	1797	0.28	0.42	12.5	B	12.5	B

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

Analyst: UBT
 Agency: ms consultants, inc
 Date: 11/20/2008
 Period: PM Peak
 Project ID: Clark County - Lower Valley Pike Safety Study
 E/W St: Lower Valley Pike

Inter.: Lower Valley Pk & Gerlaugh Rd
 Area Type: All other areas
 Jurisd: Clark County Engineer
 Year : 2008
 N/S St: Gerlaugh Road

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	0	0	0	0	0
LGConfig	LT			TR						LR		
Volume	51	81			61	262				163		11
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		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	25.0				25.0			
Yellow	3.5				3.5			
All Red	1.5				1.5			

Cycle Length: 60.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LT 622 1493 0.24 0.42 12.2 B 12.2 B

Westbound

TR 705 1692 0.51 0.42 15.6 B 15.6 B

Northbound

Southbound

LR 750 1800 0.26 0.42 12.3 B 12.3 B

Intersection Delay = 14.0 (sec/veh) Intersection LOS = B

Analyst: UBT
 Agency: ms consultants, inc
 Date: 11/14/2008
 Period: AM Peak
 Project ID: Clark County - Lower Valley Pike Safety Study
 E/W St: Lower Valley Pike

Inter.: Lower Valley Pk & Spangler Rd
 Area Type: All other areas
 Jurisd: Clark County Engineer
 Year : 2008
 N/S St: Spangler Rd

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	1	0
LGConfig	LTR			LTR			LTR			LTR		
Volume	18	52	140	29	57	19	45	100	5	16	371	16
Lane Width	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		P	
Thru		P			Thru		P	
Right		P			Right		P	
Peds					Peds			
WB Left		P			SB Left	P	P	
Thru		P			Thru	P	P	
Right		P			Right	P	P	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	25.0				10.0		25.0	
Yellow	3.5				3.5		3.5	
All Red	1.5				1.5		1.5	

Cycle Length: 75.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	561	1683	0.42	0.33	21.6	C	21.6	C
Westbound								
LTR	544	1633	0.21	0.33	18.8	B	18.8	B
Northbound								
LTR	501	1502	0.33	0.33	20.5	C	20.5	C
Southbound								
LTR	983	1886	0.46	0.53	12.3	B	12.3	B

Intersection Delay = 16.8 (sec/veh) Intersection LOS = B

Analyst: UBT
 Agency: ms consultants, inc
 Date: 11/14/2008
 Period: PM Peak
 Project ID: Clark County - Lower Valley Pike Safety Study
 E/W St: Lower Valley Pike

Inter.: Lower Valley Pk & Spangler Rd
 Area Type: All other areas
 Jurisd: Clark County Engineer
 Year : 2008
 N/S St: Spangler Rd

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	1	0
LGConfig	LTR			LTR			LTR			LTR		
Volume	35	140	85	13	127	20	164	386	23	28	229	21
Lane Width	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	P	P	
Thru		P			Thru	P	P	
Right		P			Right	P	P	
Peds					Peds			
WB Left		P			SB Left		P	
Thru		P			Thru		P	
Right		P			Right		P	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	20.0				15.0	25.0		
Yellow	3.5				3.5	3.5		
All Red	1.5				1.5	1.5		

Cycle Length: 75.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	454	1703	0.64	0.27	31.0	C	31.0	C
Westbound								
LTR	481	1802	0.37	0.27	24.5	C	24.5	C
Northbound								
LTR	864	1863	0.74	0.60	16.3	B	16.3	B
Southbound								
LTR	567	1701	0.54	0.33	24.1	C	24.1	C

Intersection Delay = 22.0 (sec/veh) Intersection LOS = C

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Union Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	AM Peak		

Project Description <i>Clark County - Lower Valley Pike Safety Study</i>	
East/West Street: <i>Lower Valley Pike</i>	North/South Street: <i>Union Rd</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street Movement	Eastbound			Westbound		
	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	6	56	4	41	48	7
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	6	62	4	45	53	7
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street Movement	Northbound			Southbound		
	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	1	3	5	6	14	7
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	1	3	5	6	15	7
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (veh/h)	6	45		9			28	
C (m) (veh/h)	1556	1549		818			732	
v/c	0.00	0.03		0.01			0.04	
95% queue length	0.01	0.09		0.03			0.12	
Control Delay (s/veh)	7.3	7.4		9.4			10.1	
LOS	A	A		A			B	
Approach Delay (s/veh)	--	--		9.4			10.1	
Approach LOS	--	--		A			B	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Union Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	PM Peak		

Project Description <i>Clark County - Lower Valley Pike Safety Study</i>	
East/West Street: <i>Lower Valley Pike</i>	North/South Street: <i>Union Rd</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	10	101	118	18	115	4
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	11	112	131	20	127	4
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	83	60	45	4	15	12
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	92	66	50	4	16	13
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach	<i>N</i>			<i>N</i>		
Storage	0			0		
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (veh/h)	11	20		208			33	
C (m) (veh/h)	1467	1335		600			605	
v/c	0.01	0.01		0.35			0.05	
95% queue length	0.02	0.05		1.54			0.17	
Control Delay (s/veh)	7.5	7.7		14.1			11.3	
LOS	<i>A</i>	<i>A</i>		<i>B</i>			<i>B</i>	
Approach Delay (s/veh)	--	--	14.1			11.3		
Approach LOS	--	--	<i>B</i>			<i>B</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pk & Lammes Ln
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	AM Peak		

Project Description <i>Clark County - Lower Valley Pike Safety Study</i>	
East/West Street: <i>Lower Valley Pike</i>	North/South Street: <i>Lammes Lane</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	4	89			91	1
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	4	98	0	0	101	1
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	LT					TR
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				4		8
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	4	0	8
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	4						12	
C (m) (veh/h)	1503						892	
v/c	0.00						0.01	
95% queue length	0.01						0.04	
Control Delay (s/veh)	7.4						9.1	
LOS	A						A	
Approach Delay (s/veh)	--	--					9.1	
Approach LOS	--	--					A	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pk & Lammes Ln
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	PM Peak		

Project Description <i>Clark County - Lower Valley Pike Safety Study</i>	
East/West Street: <i>Lower Valley Pike</i>	North/South Street: <i>Lammes Lane</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound			
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume (veh/h)		3	154			122	10
Peak-Hour Factor, PHF		0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)		3	171	0	0	135	11
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type	<i>Undivided</i>						
RT Channelized				0			0
Lanes		0	1	0	0	1	0
Configuration		<i>LT</i>					<i>TR</i>
Upstream Signal			0			0	

Minor Street	Northbound			Southbound			
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume (veh/h)					4		2
Peak-Hour Factor, PHF		1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)		0	0	0	4	0	2
Percent Heavy Vehicles		0	0	0	0	0	0
Percent Grade (%)		0			0		
Flared Approach			<i>N</i>			<i>N</i>	
Storage			0			0	
RT Channelized				0			0
Lanes		0	0	0	0	0	0
Configuration					<i>LR</i>		

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
			Movement	7	8	9	10	11
			1	4				
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	3						6	
C (m) (veh/h)	1448						742	
v/c	0.00						0.01	
95% queue length	0.01						0.02	
Control Delay (s/veh)	7.5						9.9	
LOS	<i>A</i>						<i>A</i>	
Approach Delay (s/veh)	--	--					9.9	
Approach LOS	--	--					<i>A</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Snider Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	AM Peak		

Project Description <i>Clark County - Lower Valley Pike Safety Study</i>	
East/West Street: <i>Lower Valley Pike</i>	North/South Street: <i>Snider Rd</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street Movement	Eastbound			Westbound		
	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	2	55	7	16	114	4
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	2	61	7	17	126	4
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street Movement	Northbound			Southbound		
	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	6	17	9	4	9	5
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	6	18	10	4	10	5
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound			
			7	8	9	10	11	12	
Movement	1	4							
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>		
v (veh/h)	2	17		34			19		
C (m) (veh/h)	1468	1546		745			721		
v/c	0.00	0.01		0.05			0.03		
95% queue length	0.00	0.03		0.14			0.08		
Control Delay (s/veh)	7.5	7.4		10.1			10.1		
LOS	<i>A</i>	<i>A</i>		<i>B</i>			<i>B</i>		
Approach Delay (s/veh)	--	--		10.1			10.1		
Approach LOS	--	--		<i>B</i>			<i>B</i>		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Snider Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	PM Peak		

Project Description <i>Clark County - Lower Valley Pike Safety Study</i>	
East/West Street: <i>Lower Valley Pike</i>	North/South Street: <i>Snider Rd</i>
Intersection Orientation: <i>East-West</i>	Study Period (hrs): <i>0.25</i>

Vehicle Volumes and Adjustments

Major Street Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume (veh/h)	11	112	14	16	105	1
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	12	124	15	17	116	1
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LTR</i>			<i>LTR</i>		
Upstream Signal		0			0	

Minor Street Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume (veh/h)	22	13	20	1	20	3
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	24	14	22	1	22	3
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach		<i>N</i>			<i>N</i>	
Storage		0			0	
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration		<i>LTR</i>			<i>LTR</i>	

Delay, Queue Length, and Level of Service

Approach Movement	Eastbound 1	Westbound 4	Northbound			Southbound		
			7	8	9	10	11	12
Lane Configuration	<i>LTR</i>	<i>LTR</i>		<i>LTR</i>			<i>LTR</i>	
v (veh/h)	12	17		60			26	
C (m) (veh/h)	1484	1457		692			620	
v/c	0.01	0.01		0.09			0.04	
95% queue length	0.02	0.04		0.28			0.13	
Control Delay (s/veh)	7.4	7.5		10.7			11.1	
LOS	<i>A</i>	<i>A</i>		<i>B</i>			<i>B</i>	
Approach Delay (s/veh)	--	--		10.7			11.1	
Approach LOS	--	--		<i>B</i>			<i>B</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley & South Hampton
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	AM Peak		
Project Description <i>Clark County - Lower Valley Pike Safety Study</i>			
East/West Street: <i>Lower Valley Pike</i>		North/South Street: <i>South Hampton Rd</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound			
	Movement	1	2	3	4	5	6
		L	T	R	L	T	R
Volume (veh/h)		14	57			50	2
Peak-Hour Factor, PHF		0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)		15	63	0	0	55	2
Percent Heavy Vehicles		0	--	--	0	--	--
Median Type	<i>Undivided</i>						
RT Channelized				0			0
Lanes		0	1	0	0	1	0
Configuration		<i>LT</i>					<i>TR</i>
Upstream Signal			0			0	

Minor Street	Northbound			Southbound			
	Movement	7	8	9	10	11	12
		L	T	R	L	T	R
Volume (veh/h)					5		47
Peak-Hour Factor, PHF		1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)		0	0	0	5	0	52
Percent Heavy Vehicles		0	0	0	0	0	0
Percent Grade (%)		0			0		
Flared Approach		<i>N</i>			<i>N</i>		
Storage		0			0		
RT Channelized				0			0
Lanes		0	0	0	0	0	0
Configuration					<i>LR</i>		

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
			7	8	9	10	11	12
Movement	1	4						
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	15						57	
C (m) (veh/h)	1560						998	
v/c	0.01						0.06	
95% queue length	0.03						0.18	
Control Delay (s/veh)	7.3						8.8	
LOS	<i>A</i>						<i>A</i>	
Approach Delay (s/veh)	--	--					8.8	
Approach LOS	--	--					<i>A</i>	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley & South Hampton
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/14/2008	Analysis Year	2008
Analysis Time Period	PM Peak		
Project Description <i>Clark County - Lower Valley Pike Safety Study</i>			
East/West Street: <i>Lower Valley Pike</i>		North/South Street: <i>South Hampton Rd</i>	
Intersection Orientation: <i>East-West</i>		Study Period (hrs): <i>0.25</i>	

Vehicle Volumes and Adjustments

Major Street Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume (veh/h)	65	101			72	6
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	72	112	0	0	80	6
Percent Heavy Vehicles	0	--	--	0	--	--
Median Type	<i>Undivided</i>					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration	<i>LT</i>			<i>TR</i>		
Upstream Signal		0			0	

Minor Street Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume (veh/h)				4		25
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.90	1.00	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	4	0	27
Percent Heavy Vehicles	0	0	0	0	0	0
Percent Grade (%)	0			0		
Flared Approach	<i>N</i>			<i>N</i>		
Storage	0			0		
RT Channelized			0			0
Lanes	0	0	0	0	0	0
Configuration				<i>LR</i>		

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Configuration	<i>LT</i>						<i>LR</i>	
v (veh/h)	72						31	
C (m) (veh/h)	1523						916	
v/c	0.05						0.03	
95% queue length	0.15						0.10	
Control Delay (s/veh)	7.5						9.1	
LOS	<i>A</i>						<i>A</i>	
Approach Delay (s/veh)	--	--					9.1	
Approach LOS	--	--					<i>A</i>	

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Enon Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/17/2008	Analysis Year	2008
Analysis Time Period	AM Peak		

Project ID *Clark County - Lower Valley Pike Safety Study*

East/West Street: *Lower Valley Pike* North/South Street: *Enon Rd*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	5	40	36	19	36	0
%Thrus Left Lane						

Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	16	35	10	4	112	5
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	<i>LTR</i>		<i>LTR</i>		<i>LTR</i>		<i>LTR</i>	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	89		61		66		133	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.3		0.3		0.0	
Prop. Right-Turns	0.4		0.0		0.2		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.3		0.1		-0.0		-0.0	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.08		0.05		0.06		0.12	
hd, final value (s)	4.17		4.52		4.34		4.30	
x, final value	0.10		0.08		0.08		0.16	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.2		2.5		2.3		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	339		311		316		383	
Delay (s/veh)	7.64		7.89		7.71		8.11	
LOS	A		A		A		A	
Approach: Delay (s/veh)	7.64		7.89		7.71		8.11	
LOS	A		A		A		A	
Intersection Delay (s/veh)	7.88							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	UBT	Intersection	Lower Valley Pike & Enon Rd
Agency/Co.	ms consultants, inc	Jurisdiction	Clark County Engineer
Date Performed	11/17/2008	Analysis Year	2008
Analysis Time Period	PM Peak		

Project ID Clark County - Lower Valley Pike Safety Study

East/West Street: Lower Valley Pike

North/South Street: Enon Rd

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	14	48	32	10	55	3
%Thrus Left Lane						

Approach	Northbound			Southbound		
	L	T	R	L	T	R
Movement						
Volume (veh/h)	35	121	7	0	63	8
%Thrus Left Lane						

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.90		0.90		0.90		0.90	
Flow Rate (veh/h)	103		75		179		78	
% Heavy Vehicles	0		0		0		0	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.1		0.2		0.0	
Prop. Right-Turns	0.3		0.0		0.0		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.2		0.0		0.0		-0.1	

Departure Headway and Service Time

hd, initial value (s)	3.20		3.20		3.20		3.20	
x, initial	0.09		0.07		0.16		0.07	
hd, final value (s)	4.42		4.63		4.43		4.47	
x, final value	0.13		0.10		0.22		0.10	
Move-up time, m (s)	2.0		2.0		2.0		2.0	
Service Time, t _s (s)	2.4		2.6		2.4		2.5	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	353		325		429		328	
Delay (s/veh)	8.06		8.12		8.68		7.95	
LOS	A		A		A		A	
Approach: Delay (s/veh)	8.06		8.12		8.68		7.95	
LOS	A		A		A		A	
Intersection Delay (s/veh)	8.31							
Intersection LOS	A							