

APPENDIX F

Peak Hour Warrant Analysis

INPUT VOLUMES

Condition	major street (total of both approaches)	minor street (high volume approach)	Yes/No
			2 LANES & 1 LANE
☐ Existing - AM	1910	25	No
☒ Existing - PM	1788	47	No
☐ Background - AM	2024	34	No
☒ Background - PM	1925	55	No
☐ Total Future - AM	2027	34	No
☐ Total Future - PM	1928	55	No

JOB NUMBER: 3273

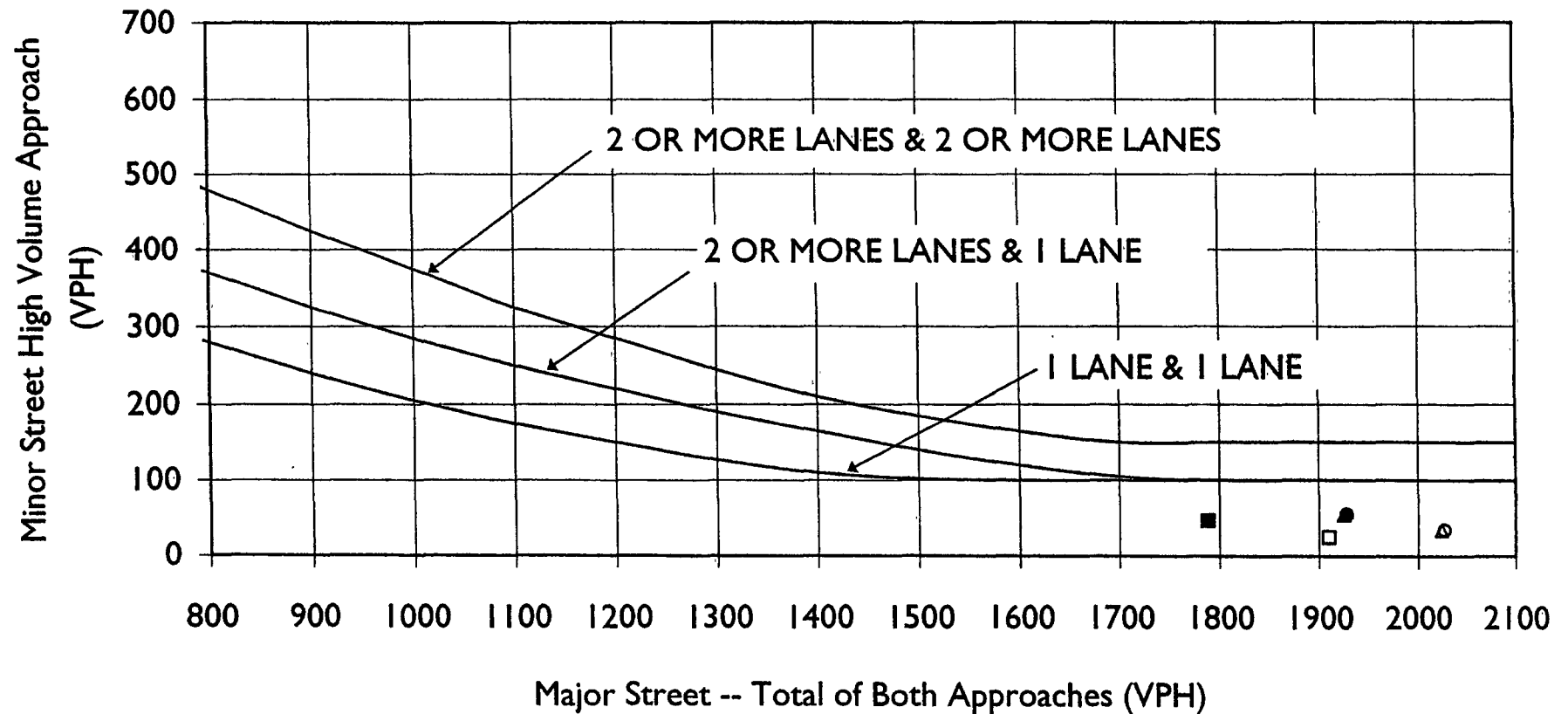
JOB NAME: Emerson Park Phase 2

CALCULATED BY: JMR

DATE: 8/3/2006

INTERSECTION: #4 - South Dakota Avenue/8th Street

Peak Hour Volume Warrant



INPUT VOLUMES

Condition	major street (total of both approaches)	minor street (high volume approach)	Yes/No
			2 LANES & 1 LANE
☐ Existing - AM	1736	28	No
☒ Existing - PM	1540	53	No
☐ Background - AM	1856	29	No
☒ Background - PM	1665	54	No
☐ Total Future - AM	1857	32	No
☒ Total Future - PM	1668	56	No

JOB NUMBER: 3273

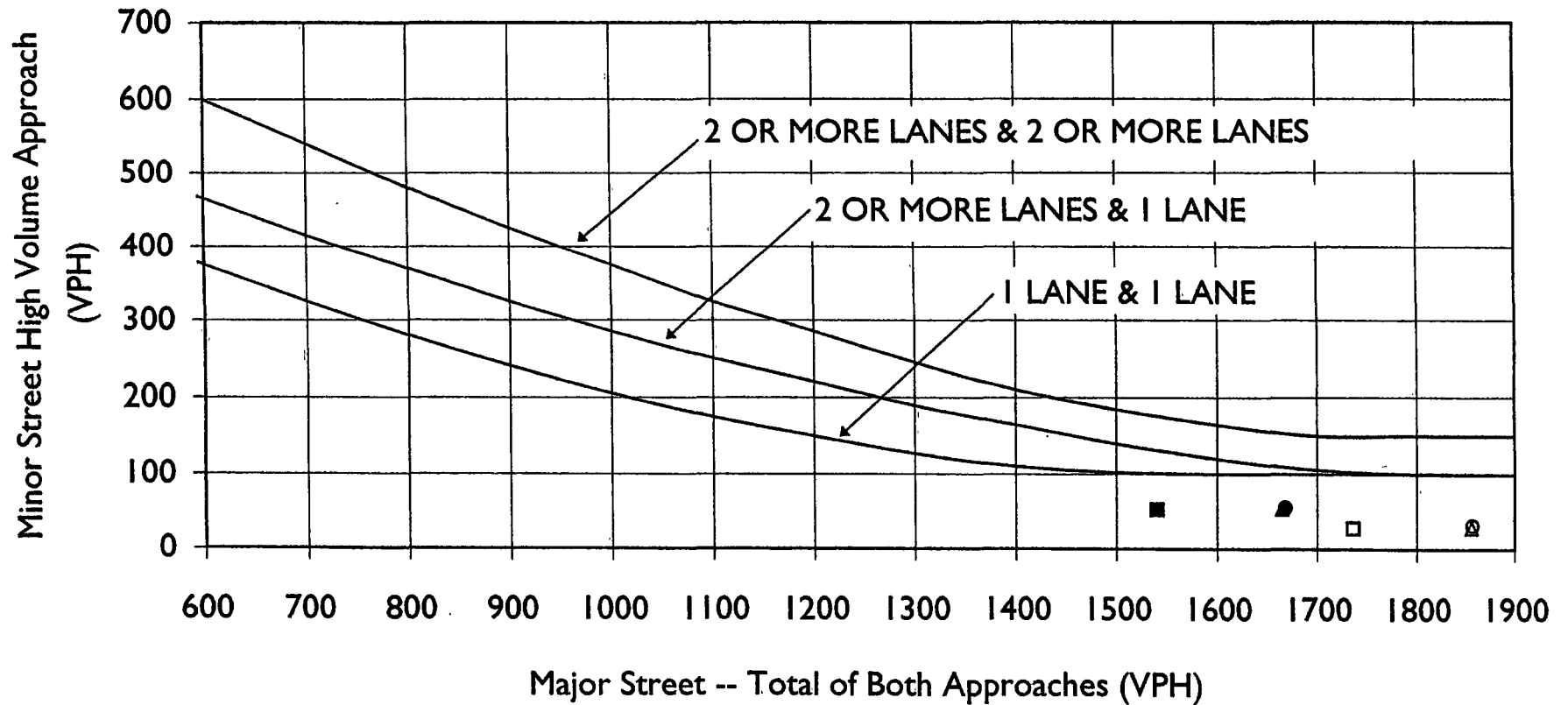
JOB NAME: Emerson Park Phase 2

CALCULATED BY: JMR

DATE: 8/3/2006

INTERSECTION: #8 - South Dakota Avenue/Buchanan Street

Peak Hour Volume Warrant



APPENDIX G

Peak Hour Site Trip Assignments Pipeline Developments

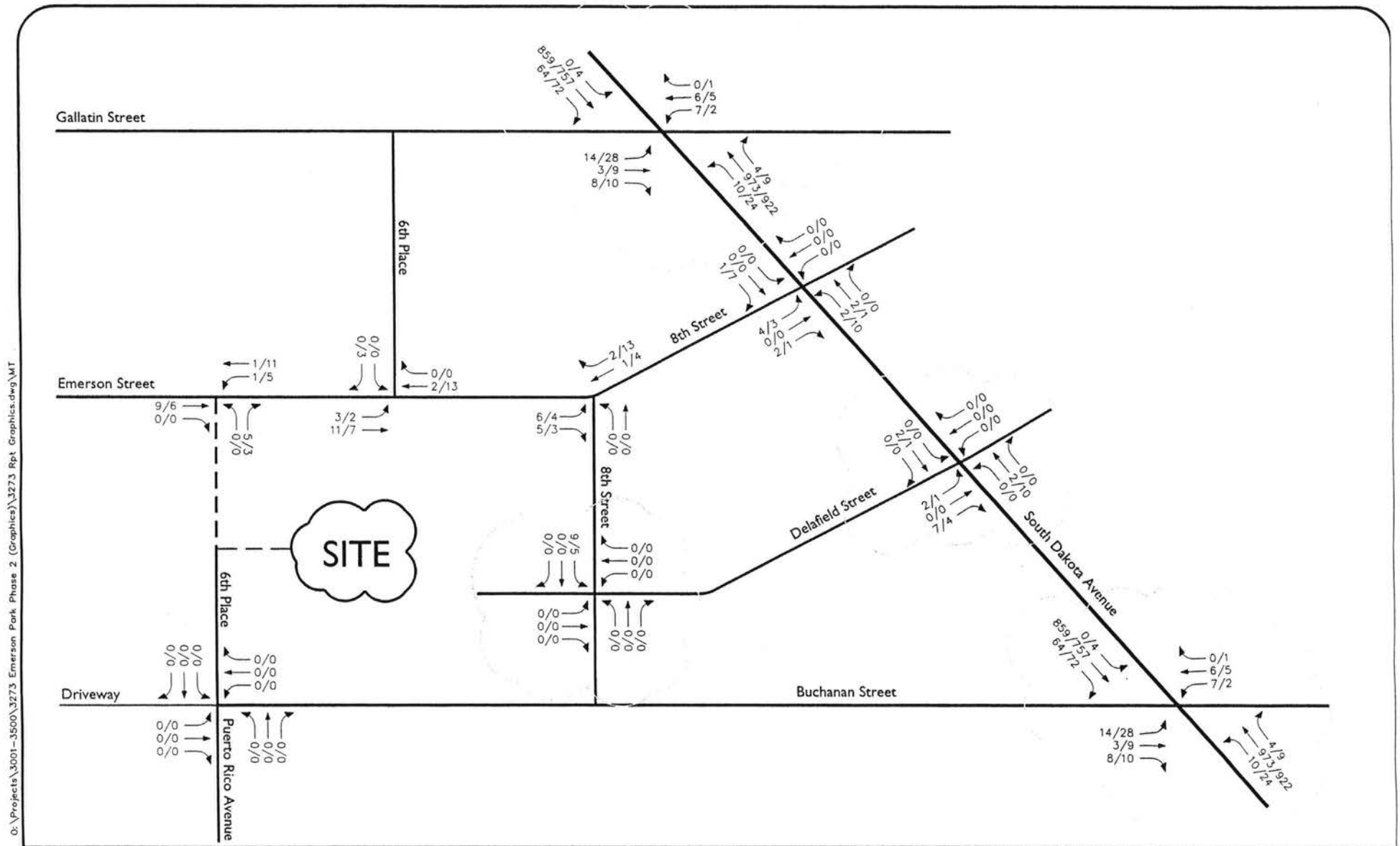


Figure G-1
Site Trip Assignments - Emerson Park Phase I

Emerson Park - Phase 2
Washington, D.C.

AM PEAK HOUR
PM PEAK HOUR
000/000



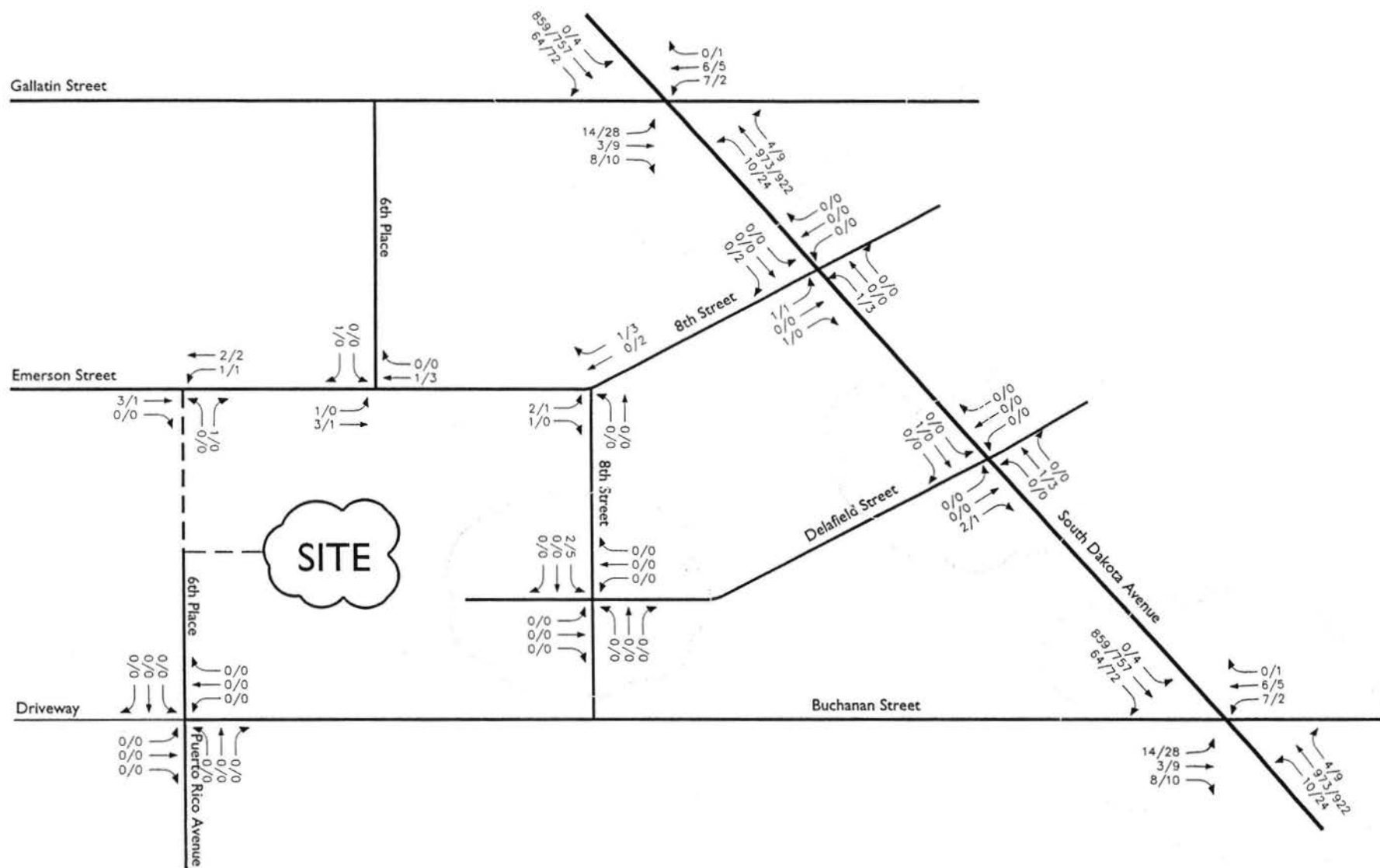


Figure G-2
Site Trip Assignments - Emerson Park Matter-of-Right

Emerson Park - Phase 2
Washington, D.C.

AM PEAK HOUR
PM PEAK HOUR
000/000



North

 **WELLS & ASSOCIATES, LLC**
TRAFFIC, TRANSPORTATION, AND PARKING CONSULTANTS

AM PEAK HOUR
PM PEAK HOUR
000/000

North

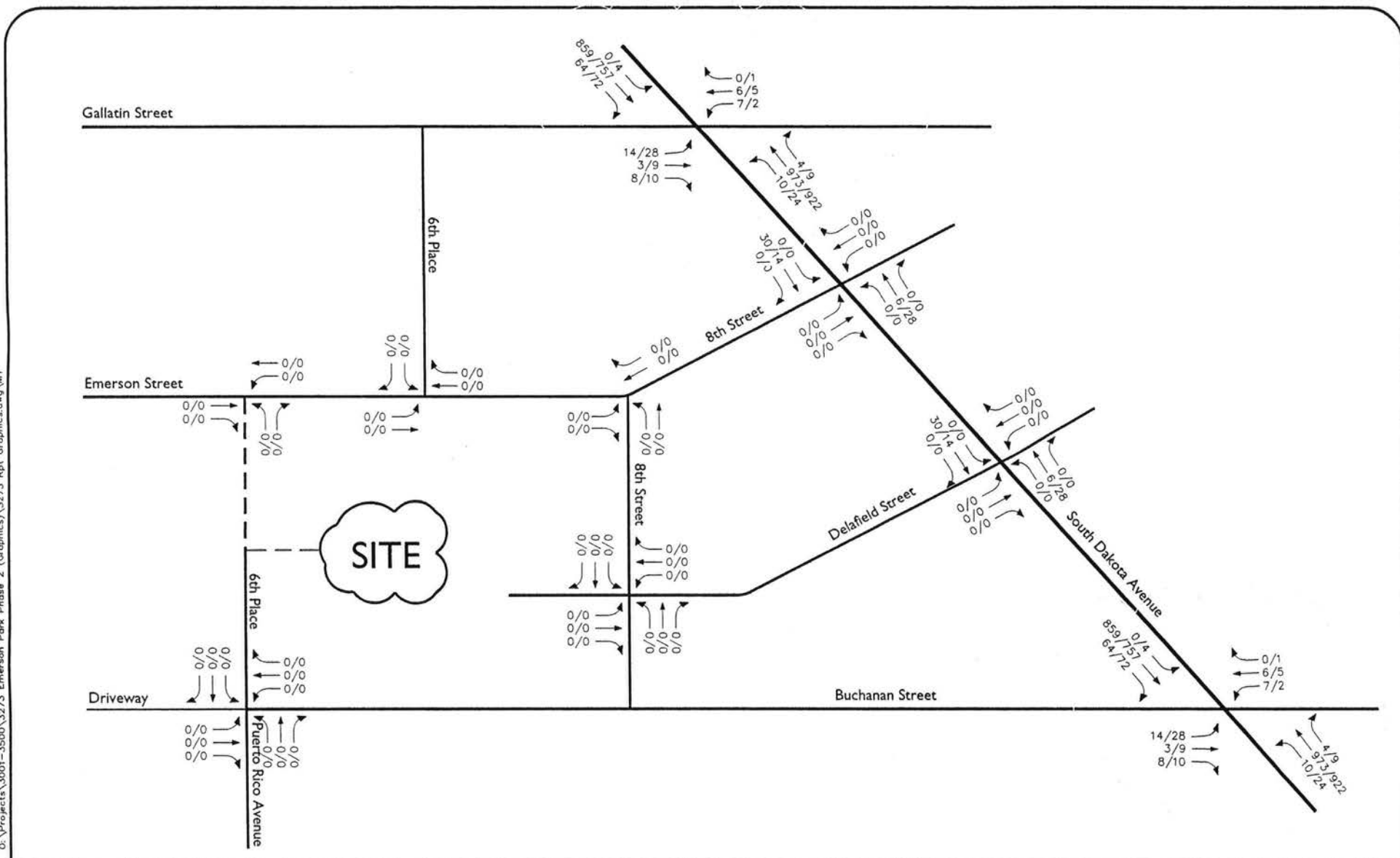


Figure G-4
Site Trip Assignments - Fort Totten (Clark)

AM PEAK HOUR
PM PEAK HOUR
000/000



Emerson Park - Phase 2
Washington, D.C.

APPENDIX H

2009 Future Background Capacity Analysis

TWO-WAY STOP CONTROL SUMMARY									
General Information					Site Information				
Analyst		JMR			Intersection		1-Emerson St/Industrial Drive		
Agency/Co.		Wells & Associates, LLC			Jurisdiction		Washington, DC		
Date Performed		8/2/2006			Analysis Year		2009 Background Conditions		
Analysis Time Period		AM Peak							
Project Description 3273 Emerson Park Phase 2									
East/West Street: Emerson Street					North/South Street: Industrial Driveway				
Intersection Orientation: East-West					Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments									
Major Street		Eastbound			Westbound				
Movement		1	2	3	4	5	6		
		L	T	R	L	T	R		
Volume (veh/h)		0	0	0	29	0	0		
Peak-hour factor, PHF		0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)		0	0	0	32	0	0		
Proportion of heavy vehicles, P_{HV}		2	-	-	2	-	-		
Median type		Undivided							
RT Channelized?				0					0
Lanes		0	1	0	0	1	0		
Configuration				TR	LT				
Upstream Signal			0			0			
Minor Street		Northbound			Southbound				
Movement		7	8	9	10	11	12		
		L	T	R	L	T	R		
Volume (veh/h)		0	0	26	0	0	0		
Peak-hour factor, PHF		0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)		0	0	28	0	0	0		
Proportion of heavy vehicles, P_{HV}		2	0	2	2	0	2		
Percent grade (%)		0			0				
Flared approach			N			N			
Storage			0			0			
RT Channelized?				0					0
Lanes		0	0	0	0	0	0		
Configuration			LR						
Control Delay, Queue Length, Level of Service									
Approach		EB	WB	Northbound			Southbound		
Movement		1	4	7	8	9	10	11	12
Lane Configuration			LT		LR				
Volume, v (vph)			32		28				
Capacity, c_m (vph)			1623		1085				
v/c ratio			0.02		0.03				
Queue length (95%)			0.06		0.08				
Control Delay (s/veh)			7.3		8.4				
LOS			A		A				

Approach delay (s/veh)	-	-	8.4	
Approach LOS	-	-	A	

HCS2000™

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JMR			Intersection	1-Emerson St/Industrial Drive			
Agency/Co.	Wells & Associates, LLC			Jurisdiction	Washington, DC			
Date Performed	8/2/2006			Analysis Year	2009 Background Conditions			
Analysis Time Period	PM Peak							
Project Description 3273 Emerson Park Phase 2								
East/West Street: Emerson Street				North/South Street: Industrial Driveway				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	0	24	0	0		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	0	0	0	26	0	0		
Proportion of heavy vehicles, P_{HV}	2	-	-	2	-	-		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	22	0	0	0		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	0	0	24	0	0	0		
Proportion of heavy vehicles, P_{HV}	2	0	2	2	0	2		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
Volume, v (vph)		26		24				
Capacity, c_m (vph)		1623		1085				
v/c ratio		0.02		0.02				
Queue length (95%)		0.05		0.07				
Control Delay (s/veh)		7.3		8.4				
LOS		A		A				

Approach delay (s/veh)	-	-	8.4	
Approach LOS	-	-	A	

HCS2000™

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JMR			Intersection	2-Emerson Street/6th Street			
Agency/Co.	Wells & Associates, LLC			Jurisdiction	Washington, DC			
Date Performed	8/2/2006			Analysis Year	2009 Background Conditions			
Analysis Time Period	AM Peak							
Project Description 3273 Emerson Park Phase 2								
East/West Street: Emerson Street				North/South Street: 6th Street				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
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	16	0	0	10	4		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	11	17	0	0	11	4		
Proportion of heavy vehicles, P_{HV}	2	-	-	0	-	-		
Median type	Undivided							
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)	0	0	0	18	0	19		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	0	0	0	20	0	21		
Proportion of heavy vehicles, P_{HV}	0	0	0	2	0	2		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
Volume, v (vph)	11						41	
Capacity, c_m (vph)	1603						1007	
v/c ratio	0.01						0.04	
Queue length (95%)	0.02						0.13	
Control Delay (s/veh)	7.3						8.7	
LOS	A						A	

Approach delay (s/veh)	-	-		8.7
Approach LOS	-	-		A

HCS2000™

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst		JMR		Intersection		2-Emerson Street/6th Street		
Agency/Co.		Wells & Associates, LLC		Jurisdiction		Washington, DC		
Date Performed		8/2/2006		Analysis Year		2009 Background Conditions		
Analysis Time Period		PM Peak						
Project Description 3273 Emerson Park Phase 2								
East/West Street: Emerson Street				North/South Street: 6th Street				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
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	19	0	0	16	14	
Peak-hour factor, PHF		0.90	0.90	0.90	0.90	0.90	0.90	
Hourly Flow Rate (veh/h)		4	21	0	0	17	15	
Proportion of heavy vehicles, P_{HV}		2	-	-	0	-	-	
Median type		Undivided						
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)		0	0	0	19	0	8	
Peak-hour factor, PHF		0.90	0.90	0.90	0.90	0.90	0.90	
Hourly Flow Rate (veh/h)		0	0	0	21	0	8	
Proportion of heavy vehicles, P_{HV}		0	0	0	2	0	2	
Percent grade (%)		0			0			
Flared approach			N			N		
Storage			0			0		
RT Channelized?				0			0	
Lanes		0	0	0	0	0	0	
Configuration						LR		
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
Volume, v (vph)	4						29	
Capacity, c_m (vph)	1580						978	
v/c ratio	0.00						0.03	
Queue length (95%)	0.01						0.09	
Control Delay (s/veh)	7.3						8.8	
LOS	A						A	

Approach delay (s/veh)	—	—		8.8
Approach LOS	—	—		A

HCS2000™

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst		JMR			Intersection		3-8th Street/Emerson Street		
Agency/Co.		Wells & Associates, LLC			Jurisdiction		Washington, DC		
Date Performed		8/2/2006			Analysis Year		2009 Background Conditions		
Analysis Time Period		AM Peak							
Project ID 3273 Emerson Park Phase 2									
East/West Street: Emerson Street					North/South Street: 8th Street				
Volume Adjustments and Site Characteristics									
Approach		Eastbound			Westbound				
Movement		L	T	R	L	T	R		
Volume		15	0	20	0	0	0		
%Thrus Left Lane		50			50				
Approach		Northbound			Southbound				
Movement		L	T	R	L	T	R		
Volume		2	18	0	0	67	12		
%Thrus Left Lane		50			50				
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Configuration		LR				LT		TR	
PHF		0.90				0.90		0.90	
Flow Rate		38				22		87	
% Heavy Vehicles		2				2		2	
No. Lanes		1		0		1		1	
Geometry Group		1				1		1	
Duration, T		0.25							
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.4				0.1		0.0		
Prop. Right-Turns	0.6				0.0		0.1		
Prop. Heavy Vehicle									
hLT-adj	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	
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7	
hadj, computed	3.90				3.90		3.90		
Departure Headway and Service Time									
hd, initial value	3.20				3.20		3.20		
x, initial	0.03				0.02		0.08		
hd, final value	3.90				3.90		3.90		
x, final value	0.04				0.03		0.10		
Move-up time, m	2.0				2.0		2.0		
Service Time	1.9		1.9		1.9		1.9		
Capacity and Level of Service									
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Capacity		288				272		337	
Delay		7.07				7.22		7.36	
LOS		A				A		A	
Approach: Delay		7.07				7.22		7.36	
LOS		A				A		A	
Intersection Delay		7.26							
Intersection LOS		A							

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst		JMR			Intersection		3-8th Street/Emerson Street		
Agency/Co.		Wells & Associates, LLC			Jurisdiction		Washington, DC		
Date Performed		8/2/2006			Analysis Year		2009 Background Conditions		
Analysis Time Period		PM Peak							
Project ID 3273 Emerson Park Phase 2									
East/West Street: Emerson Street					North/South Street: 8th Street				
Volume Adjustments and Site Characteristics									
Approach		Eastbound			Westbound				
Movement	L	T	R		L	T	R		
Volume	15	0	23		0	0	0		
%Thrus Left Lane	50				50				
Approach		Northbound			Southbound				
Movement	L	T	R		L	T	R		
Volume	11	34	0		0	93	22		
%Thrus Left Lane	50				50				
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LR				LT		TR		
PHF	0.90				0.90		0.90		
Flow Rate	41				49		127		
% Heavy Vehicles	2				2		2		
No. Lanes	1		0		1		1		
Geometry Group	1				1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.4				0.2		0.0		
Prop. Right-Turns	0.6				0.0		0.2		
Prop. Heavy Vehicle									
hLT-adj	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	
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7	
hadj, computed	4.02				4.02		4.02		
Departure Headway and Service Time									
hd, initial value	3.20				3.20		3.20		
x, initial	0.04				0.04		0.11		
hd, final value	4.02				4.02		4.02		
x, final value	0.05				0.06		0.14		
Move-up time, m	2.0				2.0		2.0		
Service Time	2.0		2.0		2.0		2.0		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity	291				299		377		
Delay	7.21				7.44		7.60		
LOS	A				A		A		
Approach: Delay	7.21				7.44		7.60		
LOS	A				A		A		
Intersection Delay	7.49								
Intersection LOS	A								

TWO-WAY STOP CONTROL SUMMARY									
General Information					Site Information				
Analyst JMR					Intersection 4-South Dakota Ave/8th Street				
Agency/Co. Wells & Associates, LLC					Jurisdiction Washington, DC				
Date Performed 8/2/2006					Analysis Year 2009 Background Conditions				
Analysis Time Period AM Peak									
Project Description 3273 Emerson Park Phase 2									
East/West Street: 8th Street					North/South Street: South Dakota Avenue				
Intersection Orientation: North-South					Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments									
Major Street		Northbound			Southbound				
Movement	1	2	3	4	5	6			
	L	T	R	L	T	R			
Volume	14	1013	4	0	927	66			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90			
Hourly Flow Rate, HFR	15	1125	4	0	1030	73			
Percent Heavy Vehicles	2	-	-	2	-	-			
Median Type	Undivided								
RT Channelized			0			0			
Lanes	0	2	0	0	2	0			
Configuration	LT		TR	LT		TR			
Upstream Signal		0			0				
Minor Street		Westbound			Eastbound				
Movement	7	8	9	10	11	12			
	L	T	R	L	T	R			
Volume	7	6	0	20	3	11			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90			
Hourly Flow Rate, HFR	7	6	0	22	3	12			
Percent Heavy Vehicles	2	2	2	2	2	2			
Percent Grade (%)	0			0					
Flared Approach		N			N				
Storage		0			0				
RT Channelized			0			0			
Lanes	0	1	0	0	1	0			
Configuration		LTR			LTR				
Delay, Queue Length, and Level of Service									
Approach	NB	SB	Westbound			Eastbound			
Movement	1	4	7	8	9	10	11	12	
Lane Configuration	LT	LT		LTR			LTR		
v (vph)	15	0		13			37		
C (m) (vph)	629	615		47			75		
v/c	0.02	0.00		0.28			0.49		
95% queue length	0.07	0.00		0.94			2.04		
Control Delay	10.9	10.9		108.6			92.8		
LOS	B	B		F			F		
Approach Delay	-	-	108.6			92.8			
Approach LOS	-	-	F			F			

Rights Reserved

TWO-WAY STOP CONTROL SUMMARY									
General Information					Site Information				
Analyst	JMR				Intersection	4-South Dakota Ave/8th Street			
Agency/Co.	Wells & Associates, LLC				Jurisdiction	Washington, DC			
Date Performed	8/2/2006				Analysis Year	2009 Background Conditions			
Analysis Time Period	PM Peak								
Project Description 3273 Emerson Park Phase 2									
East/West Street: 8th Street					North/South Street: South Dakota Avenue				
Intersection Orientation: North-South					Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments									
Major Street	Northbound			Southbound					
Movement	1	2	3	4	5	6			
	L	T	R	L	T	R			
Volume	37	991	10	4	800	83			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90			
Hourly Flow Rate, HFR	41	1101	11	4	888	92			
Percent Heavy Vehicles	2	-	-	2	-	-			
Median Type	Undivided								
RT Channelized			0			0			
Lanes	0	2	0	0	2	0			
Configuration	LT		TR	LT		TR			
Upstream Signal		0			0				
Minor Street	Westbound			Eastbound					
Movement	7	8	9	10	11	12			
	L	T	R	L	T	R			
Volume	2	5	1	33	10	12			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90			
Hourly Flow Rate, HFR	2	5	1	36	11	13			
Percent Heavy Vehicles	2	2	2	2	2	2			
Percent Grade (%)	0			0					
Flared Approach		N			N				
Storage		0			0				
RT Channelized			0			0			
Lanes	0	1	0	0	1	0			
Configuration		LTR			LTR				
Delay, Queue Length, and Level of Service									
Approach	NB	SB	Westbound			Eastbound			
Movement	1	4	7	8	9	10	11	12	
Lane Configuration	LT	LT	LTR			LTR			
v (vph)	41	4	8			60			
C (m) (vph)	700	624	50			73			
v/c	0.06	0.01	0.16			0.82			
95% queue length	0.19	0.02	0.52			4.00			
Control Delay	10.5	10.8	90.2			155.1			
LOS	B	B	F			F			
Approach Delay	-	-	90.2			155.1			
Approach LOS	-	-	F			F			

Rights Reserved

SHORT REPORT												
General Information						Site Information						
Analyst <i>JMR</i>						Intersection <i>5-South Dakota Ave/Delafield</i>						
Agency or Co. <i>Wells & Associates, LLC</i>						Area Type <i>All other areas</i>						
Date Performed <i>8/2/2006</i>						Jurisdiction <i>Washington, DC</i>						
Time Period <i>AM Peak</i>						Analysis Year <i>2009 Background Conditions</i>						
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	0	0	0	2	0	0	2	0
Lane group	LTR			LR			TR			LT		
Volume (vph)	49	16	32	69		31		915	11	3	948	
% Heavy veh	2	2	2	2		2		2	2	2	2	
PHF	0.90	0.90	0.90	0.90		0.90		0.90	0.90	0.90	0.90	
Actuated (P/A)	P	P	P	P		P		P	P	P	P	
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0			
Lane Width		15.0			15.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			0			4			0	
Unit Extension		3.0			3.0			3.0			3.0	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 25.0	G =	G =	G =	G = 65.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 100.0						
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		108			111			1029			1056	
Lane group cap.		477			374			2207			2124	
v/c ratio		0.23			0.30			0.47			0.50	
Green ratio		0.25			0.25			0.65			0.65	
Unif. delay d1		29.8			30.4			8.8			9.0	
Delay factor k		0.50			0.50			0.50			0.50	
Increm. delay d2		1.1			2.0			0.7			0.8	
PF factor		1.000			1.000			1.000			1.000	
Control delay		30.9			32.4			9.5			9.9	
Lane group LOS		C			C			A			A	
Apprch. delay		30.9			32.4			9.5			9.9	
Approach LOS		C			C			A			A	
Intersec. delay		11.8			Intersection LOS							B

SHORT REPORT												
General Information						Site Information						
Analyst JMR Agency or Co. Wells & Associates, LLC Date Performed 8/2/2006 Time Period PM Peak						Intersection 5-South Dakota Ave/Delafield Area Type All other areas Jurisdiction Washington, DC Analysis Year 2009 Background Conditions						
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	0	0	0	2	0	0	2	0
Lane group		LTR			LR			TR			LT	
Volume (vph)	44	30	23	38		43		914	39	11	802	
% Heavy veh	2	2	2	2		2		2	2	2	2	
PHF	0.90	0.90	0.90	0.90		0.90		0.90	0.90	0.90	0.90	
Actuated (P/A)	P	P	P	P		P		P	P	P	P	
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0			
Lane Width		15.0			15.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			0			6			0	
Unit Extension		3.0			3.0			3.0			3.0	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 25.0	G =	G =	G =	G = 65.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 100.0						
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		108			90			1059			903	
Lane group cap.		485			397			2189			2088	
v/c ratio		0.22			0.23			0.48			0.43	
Green ratio		0.25			0.25			0.65			0.65	
Unif. delay d1		29.8			29.8			8.9			8.5	
Delay factor k		0.50			0.50			0.50			0.50	
Increm. delay d2		1.1			1.3			0.8			0.7	
PF factor		1.000			1.000			1.000			1.000	
Control delay		30.8			31.1			9.7			9.2	
Lane group LOS		C			C			A			A	
Apprch. delay		30.8			31.1			9.7			9.2	
Approach LOS		C			C			A			A	
Intersec. delay		11.4			Intersection LOS							B

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst		JMR			Intersection		6-8th Street/Delafield Street		
Agency/Co.		Wells & Associates, LLC			Jurisdiction		Washington, DC		
Date Performed		8/2/2006			Analysis Year		2009 Background Conditions		
Analysis Time Period		AM Peak							
Project ID 3273 Emerson Park Phase 2									
East/West Street: Delafield Street					North/South Street: 8th Street				
Volume Adjustments and Site Characteristics									
Approach		Eastbound				Westbound			
Movement	L	T	R	L	T	R	L	T	R
Volume	5	13	2	0	0	0	0	0	0
%Thrus Left Lane	50			50					
Approach		Northbound				Southbound			
Movement	L	T	R	L	T	R	L	T	R
Volume	0	14	58	16	66	6			
%Thrus Left Lane	50			50					
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Configuration		LTR				LTR		LTR	
PHF		0.90				0.90		0.90	
Flow Rate		21				79		96	
% Heavy Vehicles		2				2		2	
No. Lanes		1		0		1		1	
Geometry Group		1				1		1	
Duration, T		0.25							
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.2				0.0			0.2	
Prop. Right-Turns	0.1				0.8			0.1	
Prop. Heavy Vehicle									
hLT-adj	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
hHV-adj	1.7	1.7			1.7	1.7		1.7	1.7
hadj, computed	4.28				4.28			4.28	
Departure Headway and Service Time									
hd, initial value	3.20				3.20			3.20	
x, initial	0.02				0.07			0.09	
hd, final value	4.28				4.28			4.28	
x, final value	0.02				0.08			0.11	
Move-up time, m	2.0			2.0			2.0		
Service Time	2.3		2.3		2.3		2.3		
Capacity and Level of Service									
		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Capacity		271				329		346	
Delay		7.39				6.89		7.54	
LOS		A				A		A	
Approach: Delay		7.39				6.89		7.54	
LOS		A				A		A	
Intersection Delay	7.26								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst		JMR			Intersection		6-8th Street/Delafield Street		
Agency/Co.		Wells & Associates, LLC			Jurisdiction		Washington, DC		
Date Performed		8/2/2006			Analysis Year		2009 Background Conditions		
Analysis Time Period		PM Peak							
Project ID 3273 Emerson Park Phase 2									
East/West Street: Delafield Street					North/South Street: 8th Street				
Volume Adjustments and Site Characteristics									
Approach		Eastbound			Westbound				
Movement	L	T	R		L	T	R		
Volume	14	11	0		0	0	0		
%Thrus Left Lane	50				50				
Approach		Northbound			Southbound				
Movement	L	T	R		L	T	R		
Volume	5	33	64		19	70	15		
%Thrus Left Lane	50				50				
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR				LTR		LTR		
PHF	0.90				0.90		0.90		
Flow Rate	27				112		114		
% Heavy Vehicles	2				2		2		
No. Lanes	1		0		1		1		
Geometry Group	1				1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.6				0.0		0.2		
Prop. Right-Turns	0.0				0.6		0.1		
Prop. Heavy Vehicle									
hLT-adj	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	
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7	
hadj, computed	4.51				4.51		4.51		
Departure Headway and Service Time									
hd, initial value	3.20				3.20		3.20		
x, initial	0.02				0.10		0.10		
hd, final value	4.51				4.51		4.51		
x, final value	0.03				0.12		0.13		
Move-up time, m	2.0				2.0		2.0		
Service Time	2.5		2.5		2.5		2.5		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity	277				362		364		
Delay	7.66				7.23		7.65		
LOS	A				A		A		
Approach: Delay	7.66				7.23		7.65		
LOS	A				A		A		
Intersection Delay	7.46								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	JMR				Intersection	7-Buchanan Street/6th Street			
Agency/Co.	Wells & Associates, LLC				Jurisdiction	Washington, DC			
Date Performed	8/2/2006				Analysis Year	2009 Background Conditions			
Analysis Time Period	AM Peak								
Project ID 3273 Emerson Park Phase 2									
East/West Street: Buchanan Street					North/South Street: 6th Street				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume	0	0	1		82	3	18		
%Thrus Left Lane	50				50				
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume	1	8	21		7	12	0		
%Thrus Left Lane	50				50				
	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	1		114		32		20		
% Heavy Vehicles	0		4		6		13		
No. Lanes	1		1		1		1		
Geometry Group	1		1		1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.0		0.8		0.0		0.3		
Prop. Right-Turns	1.0		0.2		0.7		0.0		
Prop. Heavy Vehicle									
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	3.52		3.52		3.52		3.52		
Departure Headway and Service Time									
hd, initial value	3.20		3.20		3.20		3.20		
x, initial	0.00		0.10		0.03		0.02		
hd, final value	3.52		3.52		3.52		3.52		
x, final value	0.00		0.13		0.03		0.02		
Move-up time, m	2.0		2.0		2.0		2.0		
Service Time	1.5		1.5		1.5		1.5		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity	251		364		282		270		
Delay	6.53		7.76		6.99		7.59		
LOS	A		A		A		A		
Approach: Delay	6.53		7.76		6.99		7.59		
LOS	A		A		A		A		
Intersection Delay	7.58								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	JMR				Intersection	7-Buchanan Street/6th Street			
Agency/Co.	Wells & Associates, LLC				Jurisdiction	Washington, DC			
Date Performed	8/2/2006				Analysis Year	2009 Background Conditions			
Analysis Time Period	PM Peak								
Project ID 3273 Emerson Park Phase 2									
East/West Street: Buchanan Street					North/South Street: 6th Street				
Volume Adjustments and Site Characteristics									
Approach	Eastbound			Westbound					
Movement	L	T	R	L	T	R			
Volume	0	0	0	39	0	6			
%Thrus Left Lane	50			50					
Approach	Northbound			Southbound					
Movement	L	T	R	L	T	R			
Volume	0	6	105	12	5	0			
%Thrus Left Lane	50			50					
	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	0		49		122		18		
% Heavy Vehicles	2		2		2		2		
No. Lanes	1		1		1		1		
Geometry Group	1		1		1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.0		0.9		0.0		0.7		
Prop. Right-Turns	0.0		0.1		1.0		0.0		
Prop. Heavy Vehicle									
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	4.26		4.26		4.26		4.26		
Departure Headway and Service Time									
hd, initial value	3.20		3.20		3.20		3.20		
x, initial	0.00		0.04		0.11		0.02		
hd, final value	4.26		4.26		4.26		4.26		
x, final value	0.00		0.06		0.12		0.02		
Move-up time, m	2.0		2.0		2.0		2.0		
Service Time	2.3		2.3		2.3		2.3		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity	0		299		372		268		
Delay	7.26		7.57		6.96		7.39		
LOS	A		A		A		A		
Approach Delay	7.26		7.57		6.96		7.39		
LOS	A		A		A		A		
Intersection Delay	7.16								
Intersection LOS	A								

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JMR			Intersection	8-South Dakota/Buchanan			
Agency/Co.	Wells & Associates, LLC			Jurisdiction	Washington, DC			
Date Performed	8/2/2006			Analysis Year	2009 Background			
Analysis Time Period	AM Peak			Conditions				
Project Description 3273 Emerson Park Phase 2								
East/West Street: Buchanan Street				North/South Street: South Dakota Avenue				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	39	855	0	2	960	0		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	43	950	0	2	1066	0		
Percent Heavy Vehicles	2	--	--	2	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT		TR	LT		TR		
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	2	1	0	1	28		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	0	2	1	0	1	31		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT		LTR			LTR	
v (vph)	43	2		3			32	
C (m) (vph)	648	717		68			376	
v/c	0.07	0.00		0.04			0.09	
95% queue length	0.21	0.01		0.14			0.28	
Control Delay	11.0	10.0		60.4			15.5	
LOS	B	B		F			C	
Approach Delay	--	--	60.4			15.5		
Approach LOS	--	--	F			C		

Rights Reserved

HCS2000™

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY								
General Information					Site Information			
Analyst		JMR			Intersection		8-South Dakota/Buchanan	
Agency/Co.		Wells & Associates, LLC			Jurisdiction		Washington, DC	
Date Performed		8/2/2006			Analysis Year		2009 Background	
Analysis Time Period		PM Peak			Conditions			
Project Description 3273 Emerson Park Phase 2								
East/West Street: Buchanan Street					North/South Street: South Dakota Avenue			
Intersection Orientation: North-South					Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	13	863	1	1	787	0		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	14	958	1	1	874	0		
Percent Heavy Vehicles	2	-	-	2	-	-		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT		TR	LT		TR		
Upstream Signal		0			0			
Minor Street		Westbound			Eastbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	2	0	1	8	9	37		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	2	0	1	8	10	41		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LTR			LTR		
v (vph)	14	1	3			59		
C (m) (vph)	768	713	108			202		
v/c	0.02	0.00	0.03			0.29		
95% queue length	0.06	0.00	0.09			1.16		
Control Delay	9.8	10.1	39.3			30.0		
LOS	A	B	E			D		
Approach Delay	-	-	39.3			30.0		
Approach LOS	-	-	E			D		

Rights Reserved

HCS2000™

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

SHORT REPORT												
General Information							Site Information					
Analyst <i>JMR</i>							Intersection <i>9-South Dakota Ave/Gallatin</i>					
Agency or Co. <i>Wells & Associates, LLC</i>							Area Type <i>All other areas</i>					
Date Performed <i>8/2/2006</i>							Jurisdiction <i>Washington, DC</i>					
Time Period <i>AM Peak</i>							Analysis Year <i>2009 Background Conditions</i>					
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Lane group	LTR			LTR			LTR			LTR		
Volume (vph)	27	4	13	15	12	112	6	934	5	56	880	8
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	5		0	5		0	14		0	14		0
Lane Width		16.0			16.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			4			0			0	
Unit Extension		3.0			3.0			3.0			3.0	
Phasing	EW Perm	02	03	04	SB Only	NS Perm	07	08				
Timing	G = 16.0	G =	G =	G =	G = 11.0	G = 58.0	G =	G =				
	Y = 6	Y =	Y =	Y =	Y = 4	Y = 5	Y =	Y =				
Duration of Analysis (hrs) = 0.25							Cycle Length C = 100.0					
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	48			154			1051			1049		
Lane group cap.	225			285			1883			1742		
v/c ratio	0.21			0.54			0.56			0.60		
Green ratio	0.16			0.16			0.58			0.73		
Unif. delay d1	36.5			38.6			13.0			6.5		
Delay factor k	0.50			0.50			0.50			0.50		
Increment. delay d2	2.2			7.2			1.2			1.6		
PF factor	1.000			1.000			1.000			1.000		
Control delay	38.7			45.8			14.2			8.1		
Lane group LOS	D			D			B			A		
Approch. delay	38.7			45.8			14.2			8.1		
Approach LOS	D			D			B			A		
Intersec. delay	14.0			Intersection LOS						B		

SHORT REPORT												
General Information						Site Information						
Analyst <i>JMR</i>						Intersection <i>9-South Dakota Ave/Gallatin</i>						
Agency or Co. <i>Wells & Associates, LLC</i>						Area Type <i>All other areas</i>						
Date Performed <i>8/2/2006</i>						Jurisdiction <i>Washington, DC</i>						
Time Period <i>PM Peak</i>						Analysis Year <i>2009 Background Conditions</i>						
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Lane group	LTR			LTR			LTR			LTR		
Volume (vph)	24	11	11	8	12	99	4	923	9	144	793	16
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	3		0	3		0	18		0	18		0
Lane Width		16.0			16.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			3			0			0	
Unit Extension		3.0			3.0			3.0			3.0	
Phasing	EW Perm	02	03	04	SB Only	NS Perm	07	08				
Timing	G = 16.0	G =	G =	G =	G = 11.0	G = 58.0	G =	G =				
	Y = 6	Y =	Y =	Y =	Y = 4	Y = 5	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 100.0						
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	51			132			1040			1059		
Lane group cap.	259			290			1890			1558		
v/c ratio	0.20			0.46			0.55			0.68		
Green ratio	0.16			0.16			0.58			0.73		
Unif. delay d1	36.4			38.1			13.0			7.2		
Delay factor k	0.50			0.50			0.50			0.50		
Increm. delay d2	1.7			5.1			1.2			2.4		
PF factor	1.000			1.000			1.000			1.000		
Control delay	38.1			43.1			14.1			9.6		
Lane group LOS	D			D			B			A		
Apprch. delay	38.1			43.1			14.1			9.6		
Approach LOS	D			D			B			A		
Intersec. delay	14.3			Intersection LOS						B		

APPENDIX I

Turn Lane Evaluation

Input Data - Harmelink Charts for Left-Turn Lanes

JOB:	Emerson Park Phase 2
JOB NUMBER:	3273
CALCULATED BY:	JMR
DATE:	8/3/2006
DESCRIPTION:	6th Street/Site Driveway southbound left-turn lane

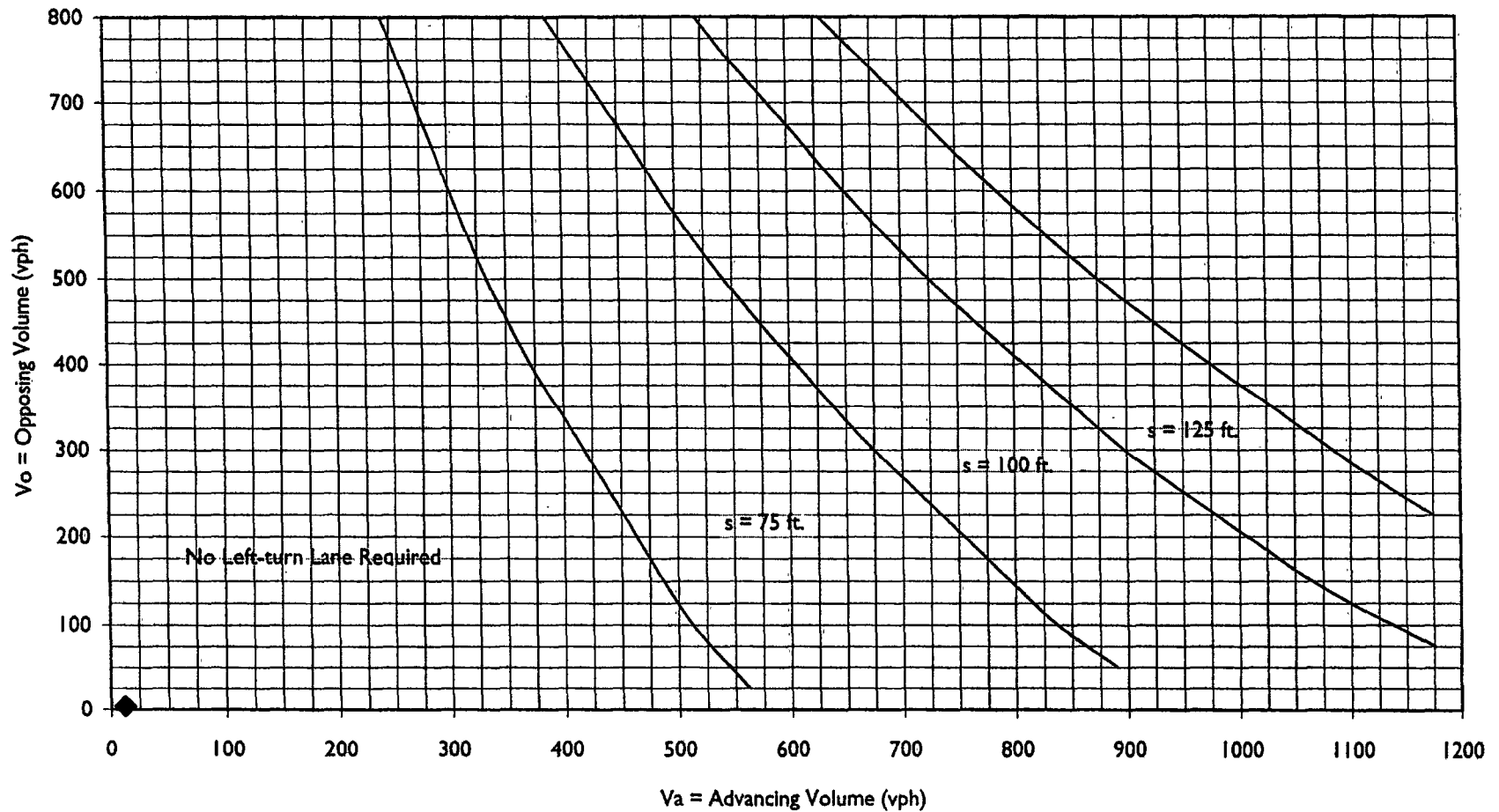
	AM	PM		AM	PM
NBL	0	0	L=	8.3	38.5
NBT	3	17	V _a (vph)=	12	13
NBR	1	5	V _o (vph)=	4	22
SBL	1	5			
SBT	11	8			
SBR	0	0			

[illegible]

6th Street/Site Driveway Southbound Left-Turn Lane

Harmelink Charts for Left-Turn Lanes

$V = 40$ mph and $L = 10\%$

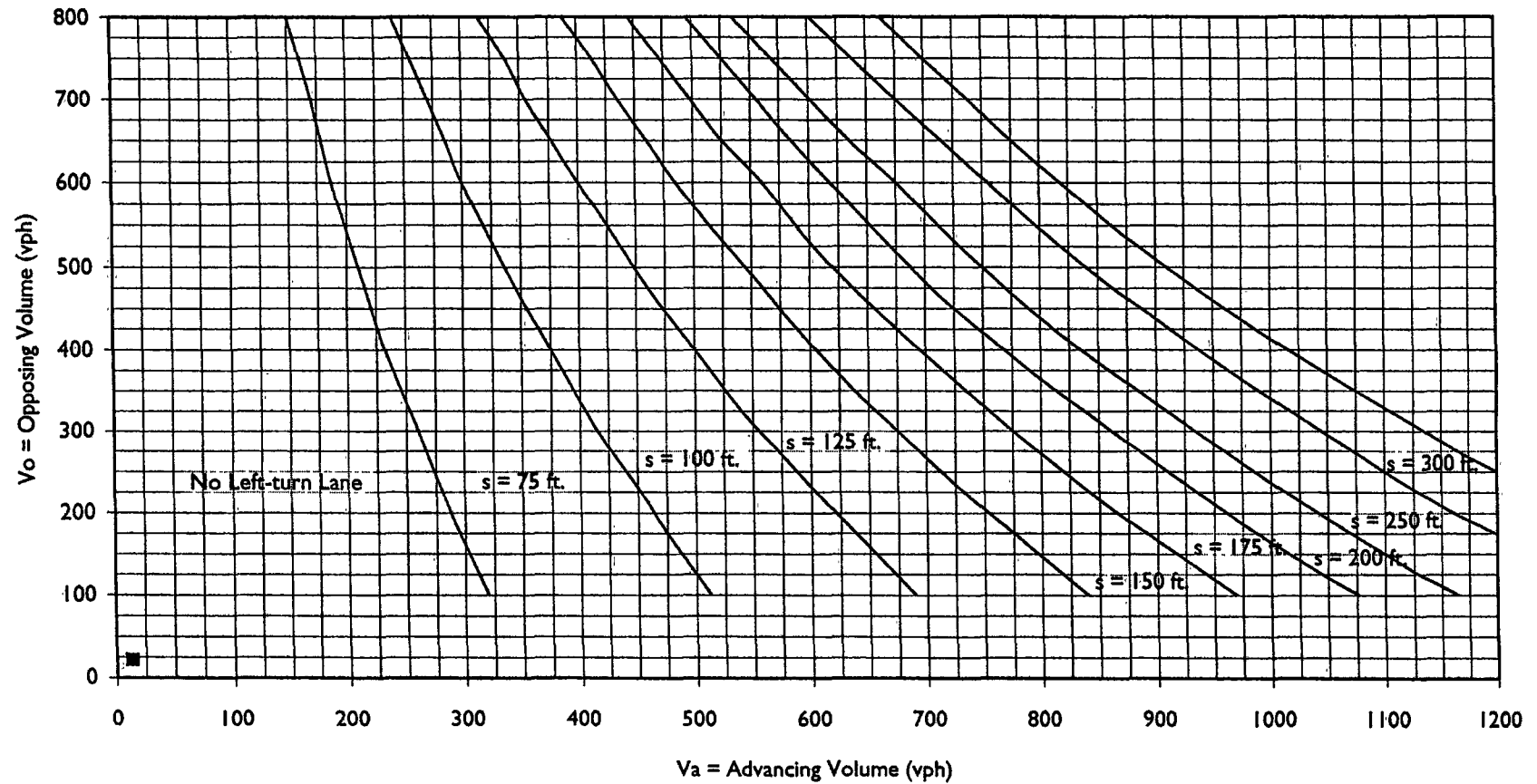


◆ AM - 2009 Total Future

6th Street/Site Driveway Southbound Left-Turn Lane

Harmelink Charts for Left-Turn Lanes

$V = 40$ mph and $L = 40\%$



■ PM - 2009 Total Future

APPENDIX J

2009 Total Future Capacity Analysis

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JMR			Intersection	1-Emerson St/Industrial Drive			
Agency/Co.	Wells & Associates, LLC			Jurisdiction	Washington, DC			
Date Performed	8/3/2006			Analysis Year	2009 Total Future Conditions			
Analysis Time Period	AM Peak							
Project Description 3273 Emerson Park Phase 2								
East/West Street: Emerson Street				North/South Street: Industrial Driveway				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	0	37	0	0		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	0	0	0	41	0	0		
Proportion of heavy vehicles, P_{HV}	2	-	-	2	-	-		
Median type	Undivided							
RT Channelized?			0			0		
Lanes	0	1	0	0	1	0		
Configuration			TR	LT				
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	0	0	28	0	0	0		
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate (veh/h)	0	0	31	0	0	0		
Proportion of heavy vehicles, P_{HV}	2	0	2	2	0	2		
Percent grade (%)	0			0				
Flared approach		N			N			
Storage		0			0			
RT Channelized?			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Control Delay, Queue Length, Level of Service								
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
Volume, v (vph)		41		31				
Capacity, c_m (vph)		1623		1085				
v/c ratio		0.03		0.03				
Queue length (95%)		0.08		0.09				

Control Delay (s/veh)		7.3		8.4			
LOS		A		A			
Approach delay (s/veh)	—	—	8.4				
Approach LOS	—	—	A				

HCS2000™

Copyright © 2003 University of Florida, All Rights Reserved

Version 4.1d

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	JMR		Intersection	1-Emerson St/Industrial Drive
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/3/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	PM Peak			

Project Description 3273 Emerson Park Phase 2

East/West Street: Emerson Street

North/South Street: Industrial Driveway

Intersection Orientation: East-West

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	0	0	0	29	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	0	0	0	32	0	0
Proportion of heavy vehicles, P_{HV}	2	--	--	2	--	--
Median type	Undivided					
RT Channelized?			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	0	0	34	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	0	0	37	0	0	0
Proportion of heavy vehicles, P_{HV}	2	0	2	2	0	2
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration		LR				

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
Volume, v (vph)		32		37				
Capacity, c_m (vph)		1623		1085				
v/c ratio		0.02		0.03				
Queue length (95%)		0.06		0.11				
Control Delay (s/veh)		7.3		8.4				
LOS		A		A				
Approach delay (s/veh)	--	--	8.4					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	JMR		Intersection	2-Emerson Street/6th Street
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/3/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	AM Peak			

Project Description 3273 Emerson Park Phase 2

East/West Street: Emerson Street

North/South Street: 6th Street

Intersection Orientation: East-West

Study Period (hrs): 0.25

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	15	0	0	13	4
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	15	16	0	0	14	4
Proportion of heavy vehicles, P_{HV}	2	--	--	0	--	--
Median type	Undivided					
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)	0	0	0	18	0	24
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	0	0	0	20	0	26
Proportion of heavy vehicles, P_{HV}	0	0	0	2	0	2
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
Volume, v (vph)	15						46	
Capacity, c_m (vph)	1599						1003	
v/c ratio	0.01						0.05	
Queue length (95%)	0.03						0.14	
Control Delay (s/veh)	7.3						8.8	
LOS	A						A	
Approach delay (s/veh)	--	--				8.8		
Approach LOS	--	--				A		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	JMR		Intersection	2-Emerson Street/6th Street
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/3/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	PM Peak			

Project Description 3273 Emerson Park Phase 2

East/West Street: Emerson Street

North/South Street: 6th Street

Intersection Orientation: East-West

Study Period (hrs): 0.25

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	21	0	0	15	14
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	15	23	0	0	16	15
Proportion of heavy vehicles, P_{HV}	2	--	--	0	--	--
Median type	Undivided					
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)	0	0	0	19	0	14
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate (veh/h)	0	0	0	21	0	15
Proportion of heavy vehicles, P_{HV}	0	0	0	2	0	2
Percent grade (%)	0			0		
Flared approach		N			N	
Storage		0			0	
RT Channelized?			0			0
Lanes	0	0	0	0	0	0
Configuration					LR	

Control Delay, Queue Length, Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
Volume, v (vph)	15						36	
Capacity, c_m (vph)	1582						969	
v/c ratio	0.01						0.04	
Queue length (95%)	0.03						0.12	
Control Delay (s/veh)	7.3						8.9	
LOS	A						A	
Approach delay (s/veh)	--	--					8.9	
Approach LOS	--	--					A	

ALL-WAY STOP CONTROL ANALYSIS

General Information			Site Information	
Analyst	JMR		Intersection	3-8th Street/Emerson Street
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/3/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	AM Peak			

Project ID 3273 Emerson Park Phase 2

East/West Street: Emerson Street

North/South Street: 8th Street

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume	16	0	18	0	0	0		
%Thrus Left Lane	50			50				
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume	2	18	0	0	67	13		
%Thrus Left Lane	50			50				
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate	37				22		88	
% Heavy Vehicles	2				2		2	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.5				0.1		0.0	
Prop. Right-Turns	0.5				0.0		0.2	
Prop. Heavy Vehicle								
hLT-adj	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
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	3.93				3.93		3.93	

Departure Headway and Service Time

hd, initial value	3.20				3.20		3.20	
x, initial	0.03				0.02		0.08	
hd, final value	3.93				3.93		3.93	
x, final value	0.04				0.03		0.10	
Move-up time, m	2.0				2.0		2.0	
Service Time	1.9		1.9		1.9		1.9	

Capacity and Level of Service

		Eastbound		Westbound		Northbound		Southbound	
		L1	L2	L1	L2	L1	L2	L1	L2
Capacity		287				272		338	
Delay		7.10				7.22		7.36	
LOS		A				A		A	
Approach: Delay		7.10				7.22		7.36	
LOS		A				A		A	
Intersection Delay		7.27							
Intersection LOS		A							

ALL-WAY STOP CONTROL ANALYSIS

General Information			Site Information	
Analyst	JMR		Intersection	3-8th Street/Emerson Street
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/3/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	PM Peak			

Project ID 3273 Emerson Park Phase 2

East/West Street: Emerson Street

North/South Street: 8th Street

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume	16	0	19	0	0	0		
%Thrus Left Lane	50			50				
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume	11	34	0	0	93	25		
%Thrus Left Lane	50			50				
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LR				LT		TR	
PHF	0.90				0.90		0.90	
Flow Rate	38				49		130	
% Heavy Vehicles	2				2		2	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.4				0.2		0.0	
Prop. Right-Turns	0.6				0.0		0.2	
Prop. Heavy Vehicle								
hLT-adj	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
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	4.07				4.07		4.07	

Departure Headway and Service Time

hd, initial value	3.20				3.20		3.20	
x, initial	0.03				0.04		0.12	
hd, final value	4.07				4.07		4.07	
x, final value	0.04				0.06		0.14	
Move-up time, m	2.0				2.0		2.0	
Service Time	2.1		2.1		2.1		2.1	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	288				299		380	
Delay	7.25				7.44		7.59	
LOS	A				A		A	
Approach: Delay	7.25				7.44		7.59	
LOS	A				A		A	
Intersection Delay	7.50							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	JMR			Intersection	4-South Dakota Ave/8th Street		
Agency/Co.	Wells & Associates, LLC			Jurisdiction	Washington, DC		
Date Performed	8/3/2006			Analysis Year	2009 Total Future Conditions		
Analysis Time Period	AM Peak						
Project Description 3273 Emerson Park Phase 2							
East/West Street: 8th Street				North/South Street: South Dakota Avenue			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume	14	1013	4	0	927	67	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR	15	1125	4	0	1030	74	
Percent Heavy Vehicles	2	-	-	2	-	-	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	2	0	0	2	0	
Configuration	LT		TR	LT		TR	
Upstream Signal		0			0		
Minor Street	Westbound			Eastbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume	7	6	0	20	3	11	
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly Flow Rate, HFR	7	6	0	22	3	12	
Percent Heavy Vehicles	2	2	2	2	2	2	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration		LTR			LTR		
Delay, Queue Length, and Level of Service							
Approach	NB	SB	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT	LT	LTR			LTR	
v (vph)	15	0	13			37	
C (m) (vph)	628	615	47			75	
v/c	0.02	0.00	0.28			0.49	
95% queue length	0.07	0.00	0.94			2.04	
Control Delay	10.9	10.9	108.6			92.8	
LOS	B	B	F			F	
Approach Delay	-	-	108.6			92.8	
Approach LOS	-	-	F			F	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JMR			Intersection	4-South Dakota Ave/8th Street			
Agency/Co.	Wells & Associates, LLC			Jurisdiction	Washington, DC			
Date Performed	8/3/2006			Analysis Year	2009 Total Future Conditions			
Analysis Time Period	PM Peak							
Project Description 3273 Emerson Park Phase 2								
East/West Street: 8th Street				North/South Street: South Dakota Avenue				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	37	991	10	4	800	86		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	41	1101	11	4	888	95		
Percent Heavy Vehicles	2	-	-	2	-	-		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT		TR	LT		TR		
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	2	5	1	33	10	12		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	2	5	1	36	11	13		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT	LTR			LTR		
v (vph)	41	4	8			60		
C (m) (vph)	698	624	50			72		
v/c	0.06	0.01	0.16			0.83		
95% queue length	0.19	0.02	0.52			4.05		
Control Delay	10.5	10.8	90.2			159.5		
LOS	B	B	F			F		
Approach Delay	-	-	90.2			159.5		
Approach LOS	-	-	F			F		

SHORT REPORT												
General Information						Site Information						
Analyst <i>JMR</i>						Intersection <i>5-South Dakota Ave/Delafield</i>						
Agency or Co. <i>Wells & Associates, LLC</i>						Area Type <i>All other areas</i>						
Date Performed <i>8/3/2006</i>						Jurisdiction <i>Washington, DC</i>						
Time Period <i>AM Peak</i>						Analysis Year <i>2009 Total Future Conditions</i>						
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	0	0	0	2	0	0	2	0
Lane group	LTR			LR			TR			LT		
Volume (vph)	51	16	32	69		31		915	11	3	948	
% Heavy veh	2	2	2	2		2		2	2	2	2	
PHF	0.90	0.90	0.90	0.90		0.90		0.90	0.90	0.90	0.90	
Actuated (P/A)	P	P	P	P		P		P	P	P	P	
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0			
Lane Width		15.0			15.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			0			4			0	
Unit Extension		3.0			3.0			3.0			3.0	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 25.0	G =	G =	G =	G = 65.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 100.0						
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	111			111			1029			1056		
Lane group cap.	478			372			2207			2124		
v/c ratio	0.23			0.30			0.47			0.50		
Green ratio	0.25			0.25			0.65			0.65		
Unif. delay d1	29.9			30.4			8.8			9.0		
Delay factor k	0.50			0.50			0.50			0.50		
Increm. delay d2	1.1			2.0			0.7			0.8		
PF factor	1.000			1.000			1.000			1.000		
Control delay	31.0			32.4			9.5			9.9		
Lane group LOS	C			C			A			A		
Apprch. delay	31.0			32.4			9.5			9.9		
Approach LOS	C			C			A			A		
Intersec. delay	11.8			Intersection LOS						B		

SHORT REPORT												
General Information						Site Information						
Analyst	JMR					Intersection	5-South Dakota Ave/Delafield					
Agency or Co.	Wells & Associates, LLC					Area Type	All other areas					
Date Performed	8/3/2006					Jurisdiction	Washington, DC					
Time Period	PM Peak					Analysis Year	2009 Total Future Conditions					
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	0	0	0	2	0	0	2	0
Lane group	LTR			LR			TR			LT		
Volume (vph)	45	30	23	38		43		914	39	11	802	
% Heavy veh	2	2	2	2		2		2	2	2	2	
PHF	0.90	0.90	0.90	0.90		0.90		0.90	0.90	0.90	0.90	
Actuated (P/A)	P	P	P	P		P		P	P	P	P	
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	0		0	0		0	0		0			
Lane Width		15.0			15.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			0			6			0	
Unit Extension		3.0			3.0			3.0			3.0	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 25.0	G =	G =	G =	G = 65.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis (hrs) = 0.25						Cycle Length C = 100.0						
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		109			90			1059			903	
Lane group cap.		485			397			2189			2088	
v/c ratio		0.22			0.23			0.48			0.43	
Green ratio		0.25			0.25			0.65			0.65	
Unif. delay d1		29.8			29.8			8.9			8.5	
Delay factor k		0.50			0.50			0.50			0.50	
Increment. delay d2		1.1			1.3			0.8			0.7	
PF factor		1.000			1.000			1.000			1.000	
Control delay		30.9			31.1			9.7			9.2	
Lane group LOS		C			C			A			A	
Approch. delay		30.9			31.1			9.7			9.2	
Approach LOS		C			C			A			A	
Intersec. delay		11.4			Intersection LOS							B

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	JMR				Intersection	6-8th Street/Delafield Street		
Agency/Co.	Wells & Associates, LLC				Jurisdiction	Washington, DC		
Date Performed	8/3/2006				Analysis Year	2009 Total Future Conditions		
Analysis Time Period	AM Peak							
Project ID 3273 Emerson Park Phase 2								
East/West Street: Delafield Street					North/South Street: 8th Street			
Volume Adjustments and Site Characteristics								
Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume	5	13	2	0	0	0		
%Thrus Left Lane	50			50				
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume	0	14	58	18	66	6		
%Thrus Left Lane	50			50				
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR				LTR		LTR	
PHF	0.90				0.90		0.90	
Flow Rate	21				79		99	
% Heavy Vehicles	2				2		2	
No. Lanes	1		0		1		1	
Geometry Group	1				1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.2				0.0		0.2	
Prop. Right-Turns	0.1				0.8		0.1	
Prop. Heavy Vehicle								
hLT-adj	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
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7
hadj, computed	4.28				4.28		4.28	
Departure Headway and Service Time								
hd, initial value	3.20				3.20		3.20	
px, initial	0.02				0.07		0.09	
hd, final value	4.28				4.28		4.28	
px, final value	0.02				0.08		0.11	
Move-up time, m	2.0				2.0		2.0	
Service Time	2.3		2.3		2.3		2.3	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	271				329		349	
Delay	7.39				6.90		7.56	
LOS	A				A		A	
Approach: Delay	7.39				6.90		7.56	
LOS	A				A		A	
Intersection Delay	7.28							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	JMR				Intersection	6-8th Street/Delafield Street			
Agency/Co.	Wells & Associates, LLC				Jurisdiction	Washington, DC			
Date Performed	8/3/2006				Analysis Year	2009 Total Future Conditions			
Analysis Time Period	PM Peak								
Project ID 3273 Emerson Park Phase 2									
East/West Street: Delafield Street					North/South Street: 8th Street				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume	14	11	0		0	0	0		
%Thrus Left Lane	50				50				
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume	5	33	64		20	70	15		
%Thrus Left Lane	50				50				
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR				LTR		LTR		
PHF	0.90				0.90		0.90		
Flow Rate	27				112		115		
% Heavy Vehicles	2				2		2		
No. Lanes	1		0		1		1		
Geometry Group	1				1		1		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.6				0.0		0.2		
Prop. Right-Turns	0.0				0.6		0.1		
Prop. Heavy Vehicle									
hLT-adj	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	
hHV-adj	1.7	1.7			1.7	1.7	1.7	1.7	
hadj, computed	4.51				4.51		4.51		
Departure Headway and Service Time									
hd, initial value	3.20				3.20		3.20		
x, initial	0.02				0.10		0.10		
hd, final value	4.51				4.51		4.51		
x, final value	0.03				0.12		0.13		
Move-up time, m	2.0				2.0		2.0		
Service Time	2.5		2.5		2.5		2.5		
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity	277				362		365		
Delay	7.67				7.23		7.65		
LOS	A				A		A		
Approach: Delay	7.67				7.23		7.65		
LOS	A				A		A		
Intersection Delay	7.47								
Intersection LOS	A								

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	JMR				Intersection	7-Buchanan Street/6th Street		
Agency/Co.	Wells & Associates, LLC				Jurisdiction	Washington, DC		
Date Performed	8/3/2006				Analysis Year	2009 Total Future Conditions		
Analysis Time Period	AM Peak							
Project ID 3273 Emerson Park Phase 2								
East/West Street: Buchanan Street					North/South Street: 6th Street			
Volume Adjustments and Site Characteristics								
Approach	Eastbound				Westbound			
Movement	L	T	R		L	T	R	
Volume	0	0	1		82	3	18	
%Thrus Left Lane	50				50			
Approach	Northbound				Southbound			
Movement	L	T	R		L	T	R	
Volume	1	12	21		13	24	0	
%Thrus Left Lane	50				50			
	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	1		114		37		40	
% Heavy Vehicles	0		4		6		13	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.0		0.8		0.0		0.3	
Prop. Right-Turns	1.0		0.2		0.6		0.0	
Prop. Heavy Vehicle								
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	3.59		3.59		3.59		3.59	
Departure Headway and Service Time								
hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.00		0.10		0.03		0.04	
hd, final value	3.59		3.59		3.59		3.59	
x, final value	0.00		0.13		0.04		0.05	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	1.6		1.6		1.6		1.6	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	251		364		287		290	
Delay	6.59		7.84		7.10		7.72	
LOS	A		A		A		A	
Approach: Delay	6.59		7.84		7.10		7.72	
LOS	A		A		A		A	
Intersection Delay	7.67							
Intersection LOS	A							

ALL-WAY STOP CONTROL ANALYSIS

General Information			Site Information	
Analyst	JMR		Intersection	7-Buchanan Street/6th Street
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/3/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	PM Peak			

Project ID 3273 Emerson Park Phase 2

East/West Street: Buchanan Street

North/South Street: 6th Street

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume	0	0	0	42	0	9		
%Thrus Left Lane	50			50				
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume	0	24	105	16	14	0		
%Thrus Left Lane	50			50				
	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	0		56		142		32	
% Heavy Vehicles	2		2		2		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.0		0.8		0.0		0.5	
Prop. Right-Turns	0.0		0.2		0.8		0.0	
Prop. Heavy Vehicle								
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	4.34		4.34		4.34		4.34	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.00		0.05		0.13		0.03	
hd, final value	4.34		4.34		4.34		4.34	
x, final value	0.00		0.07		0.14		0.04	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	2.3		2.3		2.3		2.3	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	0		306		392		282	
Delay	7.34		7.65		7.20		7.46	
LOS	A		A		A		A	
Approach: Delay	7.34		7.65		7.20		7.46	
LOS	A		A		A		A	
Intersection Delay	7.35							
Intersection LOS	A							

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JMR			Intersection	8-South Dakota/Buchanan			
Agency/Co.	Wells & Associates, LLC			Jurisdiction	Washington, DC			
Date Performed	8/3/2006			Analysis Year	2009 Total Future Conditions			
Analysis Time Period	AM Peak							
Project Description 3273 Emerson Park Phase 2								
East/West Street: Buchanan Street				North/South Street: South Dakota Avenue				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume	40	855	0	2	960	0		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	44	950	0	2	1066	0		
Percent Heavy Vehicles	2	—	—	2	—	—		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	2	0	0	2	0		
Configuration	LT		TR	LT		TR		
Upstream Signal		0			0			
Minor Street	Westbound			Eastbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume	0	2	1	0	1	31		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90		
Hourly Flow Rate, HFR	0	2	1	0	1	34		
Percent Heavy Vehicles	2	2	2	2	2	2		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT	LT		LTR			LTR	
v (vph)	44	2		3			35	
C (m) (vph)	648	717		66			382	
v/c	0.07	0.00		0.05			0.09	
95% queue length	0.22	0.01		0.14			0.30	
Control Delay	11.0	10.0		62.1			15.4	
LOS	B	B		F			C	
Approach Delay	—	—	62.1			15.4		
Approach LOS	—	—	F			C		

Rights Reserved

TWO-WAY STOP CONTROL SUMMARY									
General Information					Site Information				
Analyst	JMR				Intersection	8-South Dakota/Buchanan			
Agency/Co.	Wells & Associates, LLC				Jurisdiction	Washington, DC			
Date Performed	8/3/2006				Analysis Year	2009 Total Future			
Analysis Time Period	PM Peak				Conditions				
Project Description 3273 Emerson Park Phase 2									
East/West Street: Buchanan Street					North/South Street: South Dakota Avenue				
Intersection Orientation: North-South					Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments									
Major Street	Northbound			Southbound					
Movement	1	2	3	4	5	6			
	L	T	R	L	T	R			
Volume	16	863	1	1	787	0			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90			
Hourly Flow Rate, HFR	17	958	1	1	874	0			
Percent Heavy Vehicles	2	—	—	2	—	—			
Median Type	Undivided								
RT Channelized			0			0			
Lanes	0	2	0	0	2	0			
Configuration	LT		TR	LT		TR			
Upstream Signal		0			0				
Minor Street	Westbound			Eastbound					
Movement	7	8	9	10	11	12			
	L	T	R	L	T	R			
Volume	2	0	1	8	9	39			
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90			
Hourly Flow Rate, HFR	2	0	1	8	10	43			
Percent Heavy Vehicles	2	2	2	2	2	2			
Percent Grade (%)	0			0					
Flared Approach		N			N				
Storage		0			0				
RT Channelized			0			0			
Lanes	0	1	0	0	1	0			
Configuration		LTR			LTR				
Delay, Queue Length, and Level of Service									
Approach	NB	SB	Westbound			Eastbound			
Movement	1	4	7	8	9	10	11	12	
Lane Configuration	LT	LT		LTR			LTR		
v (vph)	17	1		3			61		
C (m) (vph)	768	713		106			204		
v/c	0.02	0.00		0.03			0.30		
95% queue length	0.07	0.00		0.09			1.20		
Control Delay	9.8	10.1		39.9			30.0		
LOS	A	B		E			D		
Approach Delay	—	—	39.9			30.0			
Approach LOS	—	—	E			D			

SHORT REPORT												
General Information							Site Information					
Analyst <i>JMR</i>							Intersection <i>9-South Dakota Ave/Gallatin</i>					
Agency or Co. <i>Wells & Associates, LLC</i>							Area Type <i>All other areas</i>					
Date Performed <i>8/3/2006</i>							Jurisdiction <i>Washington, DC</i>					
Time Period <i>AM Peak</i>							Analysis Year <i>2009 Total Future Conditions</i>					
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Lane group		LTR			LTR			LTR			LTR	
Volume (vph)	29	4	13	15	12	112	6	936	5	56	880	9
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time		2.0			2.0			2.0			2.0	
Ext. eff. green		2.0			2.0			2.0			2.0	
Arrival type		3			3			3			3	
Unit Extension		3.0			3.0			3.0			3.0	
Ped/Bike/RTOR Volume	5		0	5		0	14		0	14		0
Lane Width		16.0			16.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr		0			4			0			0	
Unit Extension		3.0			3.0			3.0			3.0	
Phasing	EW Perm	02	03	04	SB Only	NS Perm	07	08				
Timing	G = 16.0	G =	G =	G =	G = 11.0	G = 58.0	G =	G =				
	Y = 6	Y =	Y =	Y =	Y = 4	Y = 5	Y =	Y =				
Duration of Analysis (hrs) = 0.25							Cycle Length C = 100.0					
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate		50			154			1053			1050	
Lane group cap.		220			285			1883			1740	
v/c ratio		0.23			0.54			0.56			0.60	
Green ratio		0.16			0.16			0.58			0.73	
Unif. delay d1		36.6			38.6			13.1			6.5	
Delay factor k		0.50			0.50			0.50			0.50	
Increm. delay d2		2.4			7.2			1.2			1.6	
PF factor		1.000			1.000			1.000			1.000	
Control delay		39.0			45.8			14.3			8.1	
Lane group LOS		D			D			B			A	
Apprch. delay		39.0			45.8			14.3			8.1	
Approach LOS		D			D			B			A	
Intersec. delay		14.1			Intersection LOS							B

SHORT REPORT												
General Information							Site Information					
Analyst JMR							Intersection 9-South Dakota Ave/Gallatin					
Agency or Co. Wells & Associates, LLC							Area Type All other areas					
Date Performed 8/3/2006							Jurisdiction Washington, DC					
Time Period PM Peak							Analysis Year 2009 Total Future Conditions					
Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Num. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Lane group	LTR			LTR			LTR			LTR		
Volume (vph)	25	11	11	8	12	99	4	924	9	144	797	18
% Heavy veh	2	2	2	2	2	2	2	2	2	2	2	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	P
Startup lost time	2.0			2.0			2.0			2.0		
Ext. eff. green	2.0			2.0			2.0			2.0		
Arrival type	3			3			3			3		
Unit Extension	3.0			3.0			3.0			3.0		
Ped/Bike/RTOR Volume	3		0	3		0	18		0	18		0
Lane Width	16.0			16.0			11.0			11.0		
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/hr												
Bus stops/hr	0			3			0			0		
Unit Extension	3.0			3.0			3.0			3.0		
Phasing	EW Perm	02	03	04	SB Only	NS Perm	07	08				
Timing	G = 16.0	G =	G =	G =	G = 11.0	G = 58.0	G =	G =				
	Y = 6	Y =	Y =	Y =	Y = 4	Y = 5	Y =	Y =				
Duration of Analysis (hrs) = 0.25							Cycle Length C = 100.0					
Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
Adj. flow rate	52			132			1041			1066		
Lane group cap.	256			290			1890			1558		
v/c ratio	0.20			0.46			0.55			0.68		
Green ratio	0.16			0.16			0.58			0.73		
Unif. delay d1	36.5			38.1			13.0			7.3		
Delay factor k	0.50			0.50			0.50			0.50		
Increm. delay d2	1.8			5.1			1.2			2.5		
PF factor	1.000			1.000			1.000			1.000		
Control delay	38.2			43.1			14.1			9.7		
Lane group LOS	D			D			B			A		
Apprch. delay	38.2			43.1			14.1			9.7		
Approach LOS	D			D			B			A		
Intersec. delay	14.3			Intersection LOS						B		

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	JMR		Intersection	10-6th Street/Site Driveway
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/2/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	AM Peak			
Project Description 3273 Emerson Park Phase 2				
East/West Street: Site Driveway			North/South Street: 6th Street	
Intersection Orientation: North-South			Study Period (hrs): 0.25	

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	3	1	1	13	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	3	1	1	14	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	5	0	5	0	0	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	5	0	5	0	0	0
Percent Heavy Vehicles	2	0	2	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	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		1		10				
C (m) (vph)		1618		1036				
v/c		0.00		0.01				
95% queue length		0.00		0.03				
Control Delay		7.2		8.5				
LOS		A		A				
Approach Delay	--	--	8.5					
Approach LOS	--	--	A					

TWO-WAY STOP CONTROL SUMMARY

General Information			Site Information	
Analyst	JMR		Intersection	10-6th Street/Site Driveway
Agency/Co.	Wells & Associates, LLC		Jurisdiction	Washington, DC
Date Performed	8/2/2006		Analysis Year	2009 Total Future Conditions
Analysis Time Period	PM Peak			

Project Description 3273 Emerson Park Phase 2

East/West Street: Site Driveway

North/South Street: 6th Street

Intersection Orientation: North-South

Study Period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	0	19	5	5	10	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	0	21	5	5	11	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	1	0	0	1	0
Configuration			TR	LT		
Upstream Signal		0			0	
Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	3	0	3	0	0	0
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR	3	0	3	0	0	0
Percent Heavy Vehicles	2	0	2	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	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		LT		LR				
v (vph)		5		6				
C (m) (vph)		1588		1005				
v/c		0.00		0.01				
95% queue length		0.01		0.02				
Control Delay		7.3		8.6				
LOS		A		A				
Approach Delay	--	--	8.6					
Approach LOS	--	--	A					