SHORT REPORT

General Information		Site Information	
Analyst		Intersection	WASHINGTON PL & BEDFORD/CENTRE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1					2	1	1	1	1
Lane Group	L	LTR	R					T	R	L	LT	R
Volume (vph)	986	219	63					1399	278	277	214	124
% Heavy Vehicles	1	1	1					0	0	3	3	0
PHF	0.97	0.97	0.97					0.92	0.92	0.89	0.89	0.89
Pretimed/Actuated (P/A)	P	P	P					P	P	P	P	P
Startup Lost Time	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3					3	3	3	3	3
Unit Extension	3.0	3.0	3.0					3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	150	0	0				0	0	28	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	12.0
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	0	0	0					0	0	0	0	0
Minimum Pedestrian Time		15.6						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 32.0	G =	G =	G =	G = 39.0	G = 14.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	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		
Adjusted Flow Rate	660	585	62					1521	272	156	395	139
Lane Group Capacity	485	494	344					1276	570	243	206	197
v/c Ratio	1.36	1.18	0.18					1.19	0.48	0.64	1.92	0.71
Green Ratio	0.32	0.32	0.32					0.39	0.39	0.14	0.14	0.14
Uniform Delay d_1	34.0	34.0	24.5					30.5	22.9	40.6	43.0	41.0
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	0.50
Incremental Delay d_2	175.3	101.9	1.1					94.4	2.8	12.3	430.4	19.1
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	1.000
Control Delay	209.3	135.9	25.7					124.9	25.7	53.0	473.4	60.2
Lane Group LOS	F	F	C					F	C	D	F	E
Approach Delay	167.8						109.9			295.1		
Approach LOS	F						F			F		
Intersection Delay	163.6			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	BEDFORD AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	1	1	0	1	1	0			
Lane Group	L	LTR		L	TR		L	LTR				
Volume (vph)	465	230	17	6	163	115	668	122	1			
% Heavy Vehicles	0	0	0	0	0	0	0	0	0			
PHF	0.90	0.90	0.90	0.86	0.86	0.86	0.90	0.90	0.90			
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A			
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0				
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0				
Arrival Type	3	3		3	3		3	3				
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0				
Ped/Bike/RTOR Volume	50	0	0	50	0	0	50	0	0			
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0				
Parking/Grade/Parking	N	10	N	N	-6	N	N	2	Y			
Parking/Hour									10			
Bus Stops/Hour	0	0		0	0		0	0				
Minimum Pedestrian Time		15.0			16.0			12.3				

Phasing	EB Only	WB Only	03	04	NB Only	06	07	08
Timing	G = 21.0	G = 20.0	G =	G =	G = 27.5	G =	G =	G =
	Y = 5.5	Y = 5.5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 85.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	259	533		7	324		475	404				
Lane Group Capacity	381	739		374	379		520	450				
v/c Ratio	0.68	0.72		0.02	0.85		0.91	0.90				
Green Ratio	0.25	0.25		0.24	0.24		0.32	0.32				
Uniform Delay d_1	29.0	29.3		25.0	31.1		27.6	27.4				
Delay Factor k	0.25	0.28		0.11	0.39		0.43	0.42				
Incremental Delay d_2	4.9	3.5		0.0	17.1		20.7	20.4				
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000				
Control Delay	33.8	32.8		25.0	48.3		48.3	47.9				
Lane Group LOS	C	C		C	D		D	D				
Approach Delay	33.1			47.8			48.1					
Approach LOS	C			D			D					
Intersection Delay	42.1			Intersection LOS						D		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	BEDFORD AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: LOGAN 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)		174	53	1	284	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	193	58	1	315	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	1		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	1	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		6			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)		1		2				
C (m) (veh/h)		1311		619				
v/c		0.00		0.00				
95% queue length		0.00		0.01				
Control Delay (s/veh)		7.7		10.8				
LOS		A		B				
Approach Delay (s/veh)	--	--	10.8					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	BEDFORD AVE & FULTON ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: FULTON 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)		119	55	1	244	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	132	61	1	271	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	40		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	44	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		6			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)		1		45				
C (m) (veh/h)		1378		554				
v/c		0.00		0.08				
95% queue length		0.00		0.26				
Control Delay (s/veh)		7.6		12.1				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.1					
Approach LOS	--	--	B					

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	CRAWFORD ST & BEDFORD AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Lane Group		LT	R		LTR			LTR			LTR	
Volume (vph)	1	47	72	27	59	1	182	1	39	2	6	3
% Heavy Vehicles	2	2	2	2	2	2	3	3	3	0	0	0
PHF	0.88	0.88	0.88	0.87	0.87	0.87	0.89	0.89	0.89	0.55	0.55	0.55
Pretimed/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			2.0	
Extension of Effective Green		2.0	2.0		2.0			2.0			2.0	
Arrival Type		3	3		3			3			3	
Unit Extension		3.0	3.0		3.0			3.0			3.0	
Ped/Bike/RTOR Volume	25	0	8	25	0	0	25	0	4	25	0	0
Lane Width		12.0	12.0		12.0			14.0			10.0	
Parking/Grade/Parking	N	10	N	N	-6	Y	N	8	N	N	-6	Y
Parking/Hour						5						5
Bus Stops/Hour		0	0		0			0			0	
Minimum Pedestrian Time		14.5			7.8			12.3			20.3	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 15.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 50.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		54	73		100			244			20	
Lane Group Capacity		476	389		407			607			658	
v/c Ratio		0.11	0.19		0.25			0.40			0.03	
Green Ratio		0.30	0.30		0.30			0.50			0.50	
Uniform Delay d_1		12.7	13.0		13.2			7.8			6.3	
Delay Factor k		0.50	0.50		0.50			0.50			0.50	
Incremental Delay d_2		0.5	1.1		1.4			2.0			0.1	
PF Factor		1.000	1.000		1.000			1.000			1.000	
Control Delay		13.2	14.0		14.7			9.8			6.4	
Lane Group LOS		B	B		B			A			A	
Approach Delay	13.7			14.7			9.8			6.4		
Approach LOS	B			B			A			A		
Intersection Delay	11.7			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0	1	2	0	0	3	0	0	2	1
Lane Group		TR		L	TR			LTR		DefL	T	R
Volume (vph)		939	96	148	374	413	13	878	32	49	97	41
% Heavy Vehicles		2	2	2	2	2	1	1	1	9	9	9
PHF		0.77	0.77	0.87	0.87	0.87	0.84	0.84	0.84	0.91	0.91	0.91
Pretimed/Actuated (P/A)		P	P	P	P	P	P	P	P	P	P	P
Startup Lost Time		2.0		2.0	2.0			2.0		2.0	2.0	2.0
Extension of Effective Green		2.0		2.0	2.0			2.0		2.0	2.0	2.0
Arrival Type		3		3	3			3		3	3	3
Unit Extension		3.0		3.0	3.0			3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	138	0	0	291	0	0	12	0	0	57	0	0
Lane Width		13.0		12.0	10.0			12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	-1	N	N	-6	N	N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0		0	0			0		0	0	0
Minimum Pedestrian Time		24.6			25.7			21.3			3.6	

Phasing	WB Only	EW Perm	Peds Only	04	NS Perm	06	07	08
Timing	G = 6.0	G = 30.0	G = 15.0	G =	G = 20.5	G =	G =	G =
	Y = 3	Y = 5	Y = 5	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		1344		170	905			1098		54	107	45
Lane Group Capacity		1077		188	1056			899		80	363	285
v/c Ratio		1.25		0.90	0.86			1.22		0.68	0.29	0.16
Green Ratio		0.33		0.43	0.43			0.23		0.23	0.23	0.23
Uniform Delay d_1		30.0		21.3	23.0			34.8		31.7	28.8	27.8
Delay Factor k		0.50		0.50	0.50			0.50		0.50	0.50	0.50
Incremental Delay d_2		119.4		44.5	9.0			109.6		37.2	2.1	1.2
PF Factor		1.000		1.000	1.000			1.000		1.000	1.000	1.000
Control Delay		149.4		65.8	32.0			144.4		69.0	30.8	29.0
Lane Group LOS		F		E	C			F		E	C	C
Approach Delay	149.4			37.3			144.4			40.4		
Approach LOS	F			D			F			D		
Intersection Delay	109.5			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0				0	3	0	0	2	1
Lane Group		LTR						LTR		DefL	T	R
Volume (vph)	40	285	11				13	878	32	49	97	41
% Heavy Vehicles	0	0	0				1	1	1	9	9	9
PHF	0.81	0.81	0.81				0.84	0.84	0.84	0.91	0.91	0.91
Pretimed/Actuated (P/A)	P	P	P				P	P	P	P	P	P
Startup Lost Time		2.0						2.0		2.0	2.0	2.0
Extension of Effective Green		2.0						2.0		2.0	2.0	2.0
Arrival Type		3						3		3	3	3
Unit Extension		3.0						3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	138	0	0				12	0	0	57	0	0
Lane Width		12.0						12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	6	N				N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0						0		0	0	0
Minimum Pedestrian Time		24.6						21.3			3.6	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 39.0	G = 15.0	G =	G =	G = 20.5	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		415						1098		54	107	45
Lane Group Capacity		516						899		80	363	270
v/c Ratio		0.80						1.22		0.68	0.29	0.17
Green Ratio		0.17						0.23		0.23	0.23	0.23
Uniform Delay d_1		36.1						34.8		31.7	28.8	27.9
Delay Factor k		0.50						0.50		0.50	0.50	0.50
Incremental Delay d_2		12.5						109.6		37.2	2.1	1.3
PF Factor		1.000						1.000		1.000	1.000	1.000
Control Delay		48.6						144.4		69.0	30.8	29.2
Lane Group LOS		D						F		E	C	C
Approach Delay	48.6						144.4			40.5		
Approach LOS	D						F			D		
Intersection Delay	108.8			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	CENTRE AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2			2	0				1		1
Lane Group	L	T			TR					L		R
Volume (vph)	197	1199			581	449				227		354
% Heavy Vehicles	3	3			1	1				0		0
PHF	0.86	0.86			0.85	0.85				0.90		0.90
Pretimed/Actuated (P/A)	P	P			P	P				P		P
Startup Lost Time	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green	2.0	2.0			2.0					2.0		2.0
Arrival Type	3	3			3					3		3
Unit Extension	3.0	3.0			3.0					3.0		3.0
Ped/Bike/RTOR Volume	0	0		120	0	45				54	0	0
Lane Width	12.0	11.0			11.0					12.0		12.0
Parking/Grade/Parking	N	4	Y	N	-2	Y				N	-5	Y
Parking/Hour			20			20						20
Bus Stops/Hour	0	0			0					0		0
Minimum Pedestrian Time		3.2			14.0						21.6	

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 12.0	G = 41.0	G =	G =	G = 23.0	G =	G =	G =
	Y = 3	Y = 5.5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	229	1394			1159					252		393
Lane Group Capacity	285	1677			1146					426		502
v/c Ratio	0.80	0.83			1.01					0.59		0.78
Green Ratio	0.62	0.62			0.46					0.26		0.45
Uniform Delay d_1	20.2	13.3			24.5					29.4		21.0
Delay Factor k	0.50	0.50			0.50					0.50		0.50
Incremental Delay d_2	20.9	5.0			29.4					5.9		11.6
PF Factor	1.000	1.000			1.000					1.000		1.000
Control Delay	41.1	18.3			53.9					35.3		32.6
Lane Group LOS	D	B			D					D		C
Approach Delay	21.5			53.9						33.6		
Approach LOS	C			D						C		
Intersection Delay	34.7			Intersection LOS						C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	CENTRE AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: CENTRE AVENUE | North/South Street: LOGAN 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)		1426			1017	24
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	1584	0	0	1130	26
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						13
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	14
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								14
C (m) (veh/h)								460
v/c								0.03
95% queue length								0.09
Control Delay (s/veh)								13.1
LOS								B
Approach Delay (s/veh)	--	--				13.1		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM PEAK HOUR

Site Information

Intersection	CENTRE AVE & FULTON ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: CENTRE AVENUE | North/South Street: FULTON 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)		820			346	48
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	911	0	0	384	53
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						24
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	26
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								26
C (m) (veh/h)								787
v/c								0.03
95% queue length								0.10
Control Delay (s/veh)								9.7
LOS								A
Approach Delay (s/veh)	--	--				9.7		
Approach LOS	--	--				A		

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SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	Intersection	CENTRE AVE & EXIT
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2			2		1		0			
Lane Group		T			T		L	LR				
Volume (vph)		396			370		671		424			
% Heavy Vehicles		2			2		2		2			
PHF		0.90			0.90		0.90		0.90			
Pretimed/Actuated (P/A)		P			P		P		P			
Startup Lost Time		2.0			2.0		2.0	2.0				
Extension of Effective 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		124	0		0	0	14			
Lane Width		11.0			11.0		12.0	12.0				
Parking/Grade/Parking	N	4	Y	N	-2	Y	N	0	N			
Parking/Hour			20			20						
Bus Stops/Hour		0			0		0	0				
Minimum Pedestrian Time		3.2			14.0			3.2				

Phasing	Thru Only	02	03	04	NB Only	06	07	08
Timing	G = 28.5	G =	G =	G =	G = 50.5	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		440			411		470	732				
Lane Group Capacity		862			888		894	837				
v/c Ratio		0.51			0.46		0.53	0.87				
Green Ratio		0.32			0.32		0.56	0.56				
Uniform Delay d_1		25.1			24.6		12.3	17.0				
Delay Factor k		0.50			0.50		0.50	0.50				
Incremental Delay d_2		2.2			1.7		2.2	12.3				
PF Factor		1.000			1.000		1.000	1.000				
Control Delay		27.2			26.4		14.5	29.3				
Lane Group LOS		C			C		B	C				
Approach Delay	27.2			26.4			23.5					
Approach LOS	C			C			C					
Intersection Delay	24.9			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & CRAWFORD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Lane Group		LT	R	L	TR			LTR			LTR	
Volume (vph)	24	160	636	25	170	38	161	188	76	32	89	63
% Heavy Vehicles	5	5	5	4	4	4	4	4	4	9	9	9
PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.83	0.83	0.83	0.85	0.85	0.85
Pretimed/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			2.0			2.0	
Extension of Effective Green		2.0	2.0	2.0	2.0			2.0			2.0	
Arrival Type		3	3	3	3			3			3	
Unit Extension		3.0	3.0	3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	50	0	64	50	0	4	50	0	8	50	0	6
Lane Width		15.0	16.0	11.0	11.0			14.0			13.0	
Parking/Grade/Parking	N	-4	Y	N	8	Y	N	5	N	N	-6	N
Parking/Hour			10			10						
Bus Stops/Hour		0	0	0	0			0			0	
Minimum Pedestrian Time		22.8			13.5			14.8			14.8	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 43.0	G =	G =	G =	G = 37.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		212	657	28	227			503			210	
Lane Group Capacity		821	616	426	599			516			562	
v/c Ratio		0.26	1.07	0.07	0.38			0.97			0.37	
Green Ratio		0.48	0.48	0.48	0.48			0.41			0.41	
Uniform Delay d_1		14.0	23.5	12.7	15.0			26.0			18.4	
Delay Factor k		0.50	0.50	0.50	0.50			0.50			0.50	
Incremental Delay d_2		0.8	55.3	0.3	1.8			33.9			1.9	
PF Factor		1.000	1.000	1.000	1.000			1.000			1.000	
Control Delay		14.8	78.8	13.0	16.8			59.9			20.3	
Lane Group LOS		B	E	B	B			E			C	
Approach Delay	63.2			16.4			59.9			20.3		
Approach LOS	E			B			E			C		
Intersection Delay	50.9			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & DEVILLERS ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume (vph)	51	262	4	2	303	30	4	2	7	4	1	40
% Heavy Vehicles	4	4	4	6	6	6	0	0	0	0	0	0
PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.65	0.65	0.65	0.83	0.83	0.83
Pretimed/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	
Extension of Effective 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	50	0	0	50	0	3	50	0	1	50	0	4
Lane Width		16.0			10.0			11.0			11.0	
Parking/Grade/Parking	N	-2	N	N	-1	Y	N	0	Y	N	-6	Y
Parking/Hour						5			5			5
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		11.5			13.0			14.8			13.5	

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = 28.0	G = 17.0	G =	G =	G = 19.0	G =	G =	G =
	Y = 6	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		355			346			18			49	
Lane Group Capacity		1116			455			275			275	
v/c Ratio		0.32			0.76			0.07			0.18	
Green Ratio		0.64			0.35			0.24			0.24	
Uniform Delay d_1		6.6			23.0			23.6			24.3	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.8			11.4			0.5			1.4	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		7.3			34.4			24.1			25.7	
Lane Group LOS		A			C			C			C	
Approach Delay	7.3			34.4			24.1			25.7		
Approach LOS	A			C			C			C		
Intersection Delay	21.1			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & DINWIDDLE ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		1	0	0	1		0		0			
Lane Group		TR			LT			LR				
Volume (vph)		232	44	60	287		20		84			
% Heavy Vehicles		4	4	6	6		2		2			
PHF		0.89	0.89	0.96	0.96		0.86		0.86			
Pretimed/Actuated (P/A)		P	P	P	P		P		P			
Startup Lost Time		2.0			2.0			2.0				
Extension of Effective Green		2.0			2.0			2.0				
Arrival Type		3			3			3				
Unit Extension		3.0			3.0			3.0				
Ped/Bike/RTOR Volume	50	0	4	0	0		50	0	0			
Lane Width		16.0			16.0			16.0				
Parking/Grade/Parking	N	-2	N	N	-1	N	N	4	Y			
Parking/Hour									5			
Bus Stops/Hour		0			0			0				
Minimum Pedestrian Time		16.0			12.7			13.5				

Phasing	EW Perm	WB Only	03	04	NB Only	06	07	08
Timing	G = 28.0	G = 17.0	G =	G =	G = 19.0	G =	G =	G =
	Y = 6	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		306			362			121				
Lane Group Capacity		639			1017			341				
v/c Ratio		0.48			0.36			0.35				
Green Ratio		0.35			0.64			0.24				
Uniform Delay d_1		20.3			6.8			25.4				
Delay Factor k		0.50			0.50			0.50				
Incremental Delay d_2		2.6			1.0			2.9				
PF Factor		1.000			1.000			1.000				
Control Delay		22.9			7.8			28.3				
Lane Group LOS		C			A			C				
Approach Delay	22.9			7.8			28.3					
Approach LOS	C			A			C					
Intersection Delay	16.8			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FIFTH AVE & WASHINGTON/CHATHAM
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes				0	2	1	1	1			1	2
Lane Group					LT	R	L	T			T	R
Volume (vph)				54	1350	356	130	415			151	322
% Heavy Vehicles				5	5	5	0	0			2	2
PHF				0.86	0.86	0.86	0.82	0.82			0.80	0.80
Pretimed/Actuated (P/A)				P	P	P	P	P			P	P
Startup Lost Time					2.0	2.0	2.0	2.0			2.0	2.0
Extension of Effective Green					2.0	2.0	2.0	2.0			2.0	2.0
Arrival Type					3	3	3	3			3	3
Unit Extension					3.0	3.0	3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume				193	0	24	0	0		21	0	0
Lane Width					11.0	12.0	10.0	9.0			11.0	12.0
Parking/Grade/Parking				Y	-2	Y	N	-6	N	N	-2	N
Parking/Hour				20		20						
Bus Stops/Hour					0	0	0	0			0	0
Minimum Pedestrian Time					26.4			3.2			15.3	

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = 44.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate					1633	386	159	506			189	402
Lane Group Capacity					1495	508	311	495			512	769
v/c Ratio					1.09	0.76	0.51	1.02			0.37	0.52
Green Ratio					0.55	0.55	0.31	0.31			0.31	0.31
Uniform Delay d_1					18.0	13.9	22.5	27.5			21.4	22.6
Delay Factor k					0.50	0.50	0.50	0.50			0.50	0.50
Incremental Delay d_2					52.8	10.2	5.9	46.2			2.0	2.5
PF Factor					1.000	1.000	1.000	1.000			1.000	1.000
Control Delay					70.8	24.2	28.4	73.7			23.4	25.1
Lane Group LOS					E	C	C	E			C	C
Approach Delay				61.8			62.9			24.6		
Approach LOS				E			E			C		
Intersection Delay	55.3			Intersection LOS						E		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FORBES AVE & ARMSTRONG TUNNEL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0				0		2			
Lane Group		TR						LR	R			
Volume (vph)		775	608				107		492			
% Heavy Vehicles		4	4				1		1			
PHF		0.90	0.90				0.97		0.97			
Pretimed/Actuated (P/A)		P	P				P		P			
Startup Lost Time		2.0						2.0	2.0			
Extension of Effective Green		2.0						2.0	2.0			
Arrival Type		3						3	3			
Unit Extension		3.0						3.0	3.0			
Ped/Bike/RTOR Volume	50	0	0				0	0	0			
Lane Width		11.0						11.0	11.0			
Parking/Grade/Parking	N	3	N				N	0	N			
Parking/Hour												
Bus Stops/Hour		0						0	0			
Minimum Pedestrian Time		17.3						3.2				

Phasing	EB Only	02	03	04	NB Only	06	07	08
Timing	G = 46.0	G =	G =	G =	G = 24.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		1537						308	309			
Lane Group Capacity		1571						436	739			
v/c Ratio		0.98						0.71	0.42			
Green Ratio		0.57						0.30	0.30			
Uniform Delay d_1		16.5						24.9	22.4			
Delay Factor k		0.50						0.50	0.50			
Incremental Delay d_2		18.1						9.3	1.7			
PF Factor		1.000						1.000	1.000			
Control Delay		34.6						34.2	24.2			
Lane Group LOS		C						C	C			
Approach Delay	34.6						29.1					
Approach LOS	C						C					
Intersection Delay	33.1			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	FORBES AVE & CHATHAM/McANULTY
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0					1	1	0	1	
Lane Group	L	TR						T	R		LT	
Volume (vph)	368	829	71					170	136	154	54	
% Heavy Vehicles	4	4	4					0	0	1	1	
PHF	0.88	0.88	0.88					0.71	0.71	0.80	0.80	
Pretimed/Actuated (P/A)	P	P	P					P	P	P	P	
Startup Lost Time	2.0	2.0						2.0	2.0		2.0	
Extension of Effective Green	2.0	2.0						2.0	2.0		2.0	
Arrival Type	3	3						3	3		3	
Unit Extension	3.0	3.0						3.0	3.0		3.0	
Ped/Bike/RTOR Volume	87	0	0				59	0	14	21	0	
Lane Width	10.0	11.0						10.0	11.0		10.0	
Parking/Grade/Parking	N	3	N				N	-6	N	N	10	N
Parking/Hour												
Bus Stops/Hour	0	0						0	0		0	
Minimum Pedestrian Time		14.2						12.6			12.3	

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = 36.0	G =	G =	G =	G = 34.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	418	1023						239	172		259	
Lane Group Capacity	646	1315						699	589		342	
v/c Ratio	0.65	0.78						0.34	0.29		0.76	
Green Ratio	0.45	0.45						0.43	0.43		0.43	
Uniform Delay d_1	17.1	18.6						15.5	15.1		19.5	
Delay Factor k	0.50	0.50						0.50	0.50		0.50	
Incremental Delay d_2	5.0	4.6						1.3	1.3		14.5	
PF Factor	1.000	1.000						1.000	1.000		1.000	
Control Delay	22.0	23.2						16.8	16.4		34.0	
Lane Group LOS	C	C						B	B		C	
Approach Delay	22.9						16.6			34.0		
Approach LOS	C						B			C		
Intersection Delay	23.0			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & BLVD OF ALLIES
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	1		2	0	0	2	0		2	0
Lane Group		LT	R		TR			LTR			TR	
Volume (vph)	19	730	397		385	81	51	879	161		1281	116
% Heavy Vehicles	0	0	0		4	4	0	0	0		0	0
PHF	0.93	0.93	0.93		0.88	0.88	0.82	0.82	0.82		0.91	0.91
Pretimed/Actuated (P/A)	P	P	P		P	P	P	P	P		P	P
Startup Lost Time		2.0	2.0		2.0			2.0			2.0	
Extension of Effective Green		2.0	2.0		2.0			2.0			2.0	
Arrival Type		3	3		3			3			3	
Unit Extension		3.0	3.0		3.0			3.0			3.0	
Ped/Bike/RTOR Volume	200	0	8	200	0	0	200	0	0	200	0	0
Lane Width		11.0	12.0		12.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	-2	N	N	1	N	N	-1	N
Parking/Hour												
Bus Stops/Hour		0	0		0			0			0	
Minimum Pedestrian Time		19.5			18.5			29.5			20.8	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 27.0	G =	G =	G =	G = 52.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 6	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		805	418		530			1330			1535	
Lane Group Capacity		879	390		892			1195			1805	
v/c Ratio		0.92	1.07		0.59			1.11			0.85	
Green Ratio		0.30	0.30		0.30			0.58			0.58	
Uniform Delay d_1		30.4	31.5		26.8			19.0			15.8	
Delay Factor k		0.50	0.50		0.50			0.50			0.50	
Incremental Delay d_2		15.7	66.0		2.9			62.8			5.3	
PF Factor		1.000	1.000		1.000			1.000			1.000	
Control Delay		46.1	97.5		29.7			81.8			21.0	
Lane Group LOS		D	F		C			F			C	
Approach Delay	63.7			29.7			81.8			21.0		
Approach LOS	E			C			F			C		
Intersection Delay	50.8			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & FIRST AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes				0		0		2	1	1	2	
Lane Group					LR			T	R	L	T	
Volume (vph)				368		59		959	416	80	1143	
% Heavy Vehicles				3		3		2	2	1	1	
PHF				0.81		0.81		0.87	0.87	0.91	0.91	
Pretimed/Actuated (P/A)				P		P		P	P	P	P	
Startup Lost Time					2.0			2.0	2.0	2.0	2.0	
Extension of Effective Green					2.0			2.0	2.0	2.0	2.0	
Arrival Type					3			3	3	3	3	
Unit Extension					3.0			3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume				0	0	0	200	0	0	0	0	
Lane Width					12.0			11.0	12.0	10.0	12.0	
Parking/Grade/Parking				N	2	N	N	3	N	N	-3	N
Parking/Hour												
Bus Stops/Hour					0			0	0	0	0	
Minimum Pedestrian Time					18.7			13.6			3.2	

Phasing	WB Only	02	03	04	SB Only	NS Perm	07	08
Timing	G = 35.0	G =	G =	G =	G = 3.0	G = 39.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 3	Y = 5	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate					527			1102	478	88	1256	
Lane Group Capacity					601			1317	1083	129	1636	
v/c Ratio					0.88			0.84	0.44	0.68	0.77	
Green Ratio					0.39			0.43	0.88	0.50	0.50	
Uniform Delay d_1					25.5			22.7	1.1	16.1	18.3	
Delay Factor k					0.50			0.50	0.50	0.50	0.50	
Incremental Delay d_2					16.4			6.4	1.3	25.4	3.5	
PF Factor					1.000			1.000	1.000	1.000	1.000	
Control Delay					41.9			29.1	2.4	41.5	21.8	
Lane Group LOS					D			C	A	D	C	
Approach Delay				41.9			21.0			23.1		
Approach LOS				D			C			C		
Intersection Delay	25.0			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & FORT PITT/1-376
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1				1	1		2			1	1
Lane Group	L				TR	R		T			T	R
Volume (vph)	285				355	393		803			944	567
% Heavy Vehicles	1				2	2		1			1	1
PHF	0.89				0.85	0.85		0.81			0.96	0.96
Pretimed/Actuated (P/A)	P				P	P		P			P	P
Startup Lost Time	2.0				2.0	2.0		2.0			2.0	2.0
Extension of Effective Green	2.0				2.0	2.0		2.0			2.0	2.0
Arrival Type	3				3	3		3			3	3
Unit Extension	3.0				3.0	3.0		3.0			3.0	3.0
Ped/Bike/RTOR Volume	100	0		0	0	0	0	0		0	0	0
Lane Width	12.0				13.0	12.0		10.0			12.0	12.0
Parking/Grade/Parking	N	0	N	N	2	N	N	3	N	N	-1	N
Parking/Hour												
Bus Stops/Hour	0				0	0		0			0	0
Minimum Pedestrian Time		17.6			3.2			3.2			3.2	

Phasing	EB Only	WB Only	03	04	Thru & RT	06	07	08
Timing	G = 18.0	G = 21.0	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 6	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	320				441	439		991			983	591
Lane Group Capacity	322				397	329		1153			662	562
v/c Ratio	0.99				1.11	1.33		0.86			1.48	1.05
Green Ratio	0.20				0.23	0.23		0.39			0.39	0.39
Uniform Delay d_1	35.9				34.5	34.5		25.2			27.5	27.5
Delay Factor k	0.50				0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2	48.6				78.7	169.8		8.4			226.2	52.2
PF Factor	1.000				1.000	1.000		1.000			1.000	1.000
Control Delay	84.6				113.2	204.3		33.7			253.7	79.7
Lane Group LOS	F				F	F		C			F	E
Approach Delay	84.6			158.6			33.7			188.4		
Approach LOS	F			F			C			F		
Intersection Delay	131.9			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	SECOND AVE/COURT & ROSS ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0		1	1	0	1	0	1	1	0
Lane Group		LTR			T	R		LTR		L	TR	
Volume (vph)	16	283	4		374	185	10	435	96	322	104	23
% Heavy Vehicles	0	0	0		5	5	0	0	0	4	4	4
PHF	0.82	0.82	0.82		0.85	0.85	0.86	0.86	0.86	0.85	0.85	0.85
Pretimed/Actuated (P/A)	P	P	P		P	P	P	P	P	P	P	P
Startup Lost Time		2.0			2.0	2.0		2.0		2.0	2.0	
Extension of Effective Green		2.0			2.0	2.0		2.0		2.0	2.0	
Arrival Type		3			3	3		3		3	3	
Unit Extension		3.0			3.0	3.0		3.0		3.0	3.0	
Ped/Bike/RTOR Volume	100	0	0	100	0	0	100	0	10	100	0	0
Lane Width		13.0			11.0	14.0		14.0		10.0	10.0	
Parking/Grade/Parking	Y	-2	Y	N	5	N	N	2	Y	N	-3	N
Parking/Hour	10		10						10			
Bus Stops/Hour		0			0	0		0		0	0	
Minimum Pedestrian Time		13.2			13.2			12.7			8.7	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 21.0	G =	G =	G =	G = 38.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 70.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		370			440	218		618		379	149	
Lane Group Capacity		334			461	360		798		314	809	
v/c Ratio		1.11			0.95	0.61		0.77		1.21	0.18	
Green Ratio		0.30			0.30	0.30		0.54		0.54	0.54	
Uniform Delay d_1		24.5			24.0	21.0		12.6		16.0	8.1	
Delay Factor k		0.50			0.50	0.50		0.50		0.50	0.50	
Incremental Delay d_2		81.5			32.0	7.4		7.2		119.3	0.5	
PF Factor		1.000			1.000	1.000		1.000		1.000	1.000	
Control Delay		106.0			56.0	28.3		19.8		135.3	8.6	
Lane Group LOS		F			E	C		B		F	A	
Approach Delay	106.0			46.8			19.8			99.5		
Approach LOS	F			D			B			F		
Intersection Delay	62.0			Intersection LOS						E		

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ARENA PEAK HOUR

SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	LIBERTY AVE & SEVENTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0		3		1					
Lane Group		TR			T		L					
Volume (vph)		168	392		181		293					
% Heavy Vehicles		9	9		8		7					
PHF		0.93	0.93		0.87		0.88					
Pretimed/Actuated (P/A)		P	P		P		P					
Startup Lost Time		2.0			2.0		2.0					
Extension of Effective Green		2.0			2.0		2.0					
Arrival Type		3			3		3					
Unit Extension		3.0			3.0		3.0					
Ped/Bike/RTOR Volume	100	0	0	0	0		0	0				
Lane Width		11.0			11.0		12.0					
Parking/Grade/Parking	N	0	N	N	0	N	N	-2	N			
Parking/Hour												
Bus Stops/Hour		0			0		0					
Minimum Pedestrian Time		17.5			3.2			3.2				

Phasing	Thru & RT	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 7.0	G = 24.0	G =	G =	G = 26.0	G =	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		603			208		333					
Lane Group Capacity		1162			2025		569					
v/c Ratio		0.52			0.10		0.59					
Green Ratio		0.49			0.49		0.37					
Uniform Delay d_1		12.4			9.7		17.7					
Delay Factor k		0.50			0.50		0.50					
Incremental Delay d_2		1.7			0.1		4.4					
PF Factor		1.000			1.000		1.000					
Control Delay		14.0			9.8		22.0					
Lane Group LOS		B			A		C					
Approach Delay	14.0			9.8			22.0					
Approach LOS	B			A			C					
Intersection Delay	15.6			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	LIBERTY AVE & SMITHFIELD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0	0	3		1		1			
Lane Group		TR			LT		L		R			
Volume (vph)		169	1	17	111		70		112			
% Heavy Vehicles		16	16	19	19		3		3			
PHF		0.82	0.82	0.83	0.83		0.89		0.89			
Pretimed/Actuated (P/A)		P	P	P	P		P		P			
Startup Lost Time		2.0			2.0		2.0		2.0			
Extension of Effective 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	100	0	0	0	0		100	0	0			
Lane Width		11.0			11.0		11.0		13.0			
Parking/Grade/Parking	N	1	N	N	-1	N	N	-2	N			
Parking/Hour												
Bus Stops/Hour		0			0		0		0			
Minimum Pedestrian Time		17.2			3.2			17.7				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 6.0	G = 27.0	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		207			154		79		126			
Lane Group Capacity		1040			1744		528		461			
v/c Ratio		0.20			0.09		0.15		0.27			
Green Ratio		0.39			0.51		0.34		0.34			
Uniform Delay d_1		14.3			8.6		15.9		16.7			
Delay Factor k		0.50			0.50		0.50		0.50			
Incremental Delay d_2		0.4			0.1		0.6		1.5			
PF Factor		1.000			1.000		1.000		1.000			
Control Delay		14.7			8.7		16.5		18.1			
Lane Group LOS		B			A		B		B			
Approach Delay	14.7			8.7			17.5					
Approach LOS	B			A			B					
Intersection Delay	14.1			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	SEVENTH AVE & SMITHFIELD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	1	0		2	0	0	1	0
Lane Group		LTR			LTR			TR			LTR	
Volume (vph)	4	390	1	2	293	25		152	105	7	11	1
% Heavy Vehicles	3	3	3	4	4	4		2	2	82	82	82
PHF	0.93	0.93	0.93	0.86	0.86	0.86		0.86	0.86	0.71	0.71	0.71
Pretimed/Actuated (P/A)	P	P	P	P	P	P		P	P	P	P	P
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective 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	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width		11.0			11.0			11.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		3.7			12.2			12.2			12.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 29.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		424			372			299			26	
Lane Group Capacity		1206			647			1206			349	
v/c Ratio		0.35			0.57			0.25			0.07	
Green Ratio		0.41			0.41			0.43			0.43	
Uniform Delay d_1		14.1			15.8			12.8			11.8	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.8			3.7			0.5			0.4	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		14.9			19.5			13.3			12.2	
Lane Group LOS		B			B			B			B	
Approach Delay	14.9			19.5			13.3			12.2		
Approach LOS	B			B			B			B		
Intersection Delay	15.9			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & LIBERTY AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	1	0	1	1	0		3	0		2	0
Lane Group	L	TR		L	TR			TR			TR	
Volume (vph)	156	29	44	38	34	14		458	36		594	71
% Heavy Vehicles	14	14	14	30	30	30		5	5		1	1
PHF	0.72	0.72	0.72	0.70	0.70	0.70		0.85	0.85		0.94	0.94
Pretimed/Actuated (P/A)	P	P	P	P	P	P		P	P		P	P
Startup Lost Time	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival Type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width	11.0	11.0		12.0	12.0			11.0			13.0	
Parking/Grade/Parking	N	1	N	N	-2	N	N	-2	N	N	1	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0			0			0	
Minimum Pedestrian Time		20.6			20.6			26.3			24.8	

Phasing	WB Only	WB Only	EB Only	04	Thru & RT	Thru & RT	07	08
Timing	G = 26.0	G = 19.0	G = 21.0	G =	G = 40.0	G = 21.0	G =	G =
	Y = 5	Y = 5	Y = 6	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 153.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	217	101		54	69			581			708	
Lane Group Capacity	365	180		379	404			1832			1388	
v/c Ratio	0.59	0.56		0.14	0.17			0.32			0.51	
Green Ratio	0.14	0.14		0.33	0.33			0.43			0.43	
Uniform Delay d_1	62.0	61.7		36.4	36.7			28.7			31.7	
Delay Factor k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental Delay d_2	7.0	12.0		0.8	0.9			0.5			1.3	
PF Factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control Delay	69.0	73.7		37.2	37.6			29.1			33.1	
Lane Group LOS	E	E		D	D			C			C	
Approach Delay	70.5			37.4			29.1			33.1		
Approach LOS	E			D			C			C		
Intersection Delay	38.9			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & ELEVENTH ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		2				1	2			2	0
Lane Group	L		R				L	T			TR	
Volume (vph)	99		158				100	524			506	53
% Heavy Vehicles	8		8				0	0			1	1
PHF	0.75		0.75				0.91	0.91			0.78	0.78
Pretimed/Actuated (P/A)	P						P	P			P	P
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	
Arrival Type	3		3				3	3			3	
Unit Extension	3.0		3.0				3.0	3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0				0	0		0	0	0
Lane Width	11.0		12.0				11.0	12.0			12.0	
Parking/Grade/Parking	N	-1	N				N	-1	N	N	1	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	
Minimum Pedestrian Time		3.2						3.2			23.2	

Phasing	EB Only	Peds Only	03	04	NB Only	Thru & RT	NB Only	08
Timing	G = 26.0	G = 19.0	G =	G =	G = 21.0	G = 40.0	G = 21.0	G =
	Y = 5	Y = 5	Y =	Y =	Y = 6	Y = 5	Y = 5	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 153.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	132		211				110	576			717	
Lane Group Capacity	248		329				433	1989			827	
v/c Ratio	0.53		0.64				0.25	0.29			0.87	
Green Ratio	0.17		0.14				0.27	0.61			0.26	
Uniform Delay d_1	58.0		62.4				43.3	14.3			54.0	
Delay Factor k	0.50		0.50				0.50	0.50			0.50	
Incremental Delay d_2	8.0		9.3				1.4	0.4			11.8	
PF Factor	1.000		1.000				1.000	1.000			1.000	
Control Delay	65.9		71.7				44.7	14.6			65.8	
Lane Group LOS	E		E				D	B			E	
Approach Delay	69.5						19.5			65.8		
Approach LOS	E						B			E		
Intersection Delay	48.3			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & SEVENTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	2	1	1	2	0	1	2	0
Lane Group		LTR		DefL	T	R	L	TR		L	TR	
Volume (vph)	9	495	37	109	228	211	55	229	184	365	294	21
% Heavy Vehicles	4	4	4	2	2	2	3	3	3	1	1	1
PHF	0.91	0.91	0.91	0.88	0.88	0.88	0.80	0.80	0.80	0.94	0.94	0.94
Pretimed/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	2.0	2.0		2.0	2.0	
Extension of Effective Green		2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Arrival Type		3		3	3	3	3	3		3	3	
Unit Extension		3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width		11.0		10.0	10.0	13.0	11.0	11.0		11.0	11.0	
Parking/Grade/Parking	N	5	N	N	-5	N	N	-1	N	N	2	N
Parking/Hour												
Bus Stops/Hour		0		0	0	0	0	0		0	0	
Minimum Pedestrian Time		17.6			17.9			18.9			17.6	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 30.0	G =	G =	G =	G = 12.0	G = 35.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 3	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		595		124	259	240	69	516		388	335	
Lane Group Capacity		917		165	535	739	504	1076		429	1182	
v/c Ratio		0.65		0.75	0.48	0.32	0.14	0.48		0.90	0.28	
Green Ratio		0.33		0.33	0.33	0.52	0.56	0.39		0.56	0.39	
Uniform Delay d_1		25.5		26.7	23.8	12.4	9.5	20.7		24.0	18.9	
Delay Factor k		0.50		0.50	0.50	0.50	0.50	0.50		0.50	0.50	
Incremental Delay d_2		3.5		26.6	3.1	1.2	0.6	1.5		25.1	0.6	
PF Factor		1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control Delay		29.1		53.3	27.0	13.5	10.1	22.2		49.1	19.5	
Lane Group LOS		C		D	C	B	B	C		D	B	
Approach Delay	29.1			27.0			20.8			35.4		
Approach LOS	C			C			C			D		
Intersection Delay	28.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & SIXTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	2	0	1	2	0	1	2	0
Lane Group		LTR			LTR		L	TR		L	TR	
Volume (vph)	57	370	32	110	202	112	59	299	429	149	262	28
% Heavy Vehicles	3	3	3	2	2	2	1	1	1	2	2	2
PHF	0.96	0.96	0.96	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92
Pretimed/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		2.0	2.0	
Extension of Effective Green		2.0			2.0		2.0	2.0		2.0	2.0	
Arrival Type		3			3		3	3		3	3	
Unit Extension		3.0			3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	152	0	0	158	0	0	149	0	0	98	0	0
Lane Width		12.0			11.0		12.0	10.0		12.0	10.0	
Parking/Grade/Parking	N	4	N	N	-5	N	N	-1	N	N	2	N
Parking/Hour												
Bus Stops/Hour		0			0		0	0		0	0	
Minimum Pedestrian Time		18.0			18.0			16.7			12.9	

Phasing	EB Only	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 7.0	G = 32.0	G =	G =	G = 7.0	G = 28.0	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 3	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		477			511		64	791		162	315	
Lane Group Capacity		451			860		372	785		200	896	
v/c Ratio		1.06			0.59		0.17	1.01		0.81	0.35	
Green Ratio		0.47			0.36		0.42	0.31		0.42	0.31	
Uniform Delay d_1		24.0			23.7		15.9	31.0		19.5	24.0	
Delay Factor k		0.50			0.50		0.50	0.50		0.50	0.50	
Incremental Delay d_2		58.4			3.0		1.0	34.0		28.7	1.1	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		82.4			26.7		16.9	65.0		48.2	25.1	
Lane Group LOS		F			C		B	E		D	C	
Approach Delay	82.4			26.7			61.4			32.9		
Approach LOS	F			C			E			C		
Intersection Delay	52.2			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	SIXTH AVE & ROSS ST/BIGELOW
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	3	0	0	2	0	0	2	0	0	2	
Lane Group	DefL	TR			LTR			LTR		DefL	T	
Volume (vph)	250	764	25	15	227	158	27	120	297	175	170	
% Heavy Vehicles	0	0	0	2	2	2	2	2	2	1	1	
PHF	0.87	0.87	0.87	0.78	0.78	0.78	0.86	0.86	0.86	0.83	0.83	
Pretimed/Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	
Startup Lost Time	2.0	2.0			2.0			2.0		2.0	2.0	
Extension of Effective Green	2.0	2.0			2.0			2.0		2.0	2.0	
Arrival Type	3	3			3			3		3	3	
Unit Extension	3.0	3.0			3.0			3.0		3.0	3.0	
Ped/Bike/RTOR Volume	100	0	3	100	0	16	100	0	30	100	0	
Lane Width	12.0	11.0			11.0			12.0		11.0	11.0	
Parking/Grade/Parking	N	5	N	N	-6	N	N	-1	N	N	-1	N
Parking/Hour												
Bus Stops/Hour	0	0			0			0		0	0	
Minimum Pedestrian Time		17.7			17.2			20.2			7.5	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 32.0	G =	G =	G =	G = 27.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	287	903			492			481		211	205	
Lane Group Capacity	339	1394			1213			979		275	635	
v/c Ratio	0.85	0.65			0.41			0.49		0.77	0.32	
Green Ratio	0.46	0.46			0.46			0.39		0.39	0.39	
Uniform Delay d_1	16.8	14.7			12.7			16.3		18.8	15.1	
Delay Factor k	0.50	0.50			0.50			0.50		0.50	0.50	
Incremental Delay d_2	22.2	2.3			1.0			1.8		18.4	1.3	
PF Factor	1.000	1.000			1.000			1.000		1.000	1.000	
Control Delay	39.0	17.0			13.7			18.1		37.1	16.4	
Lane Group LOS	D	B			B			B		D	B	
Approach Delay	22.3			13.7			18.1			26.9		
Approach LOS	C			B			B			C		
Intersection Delay	20.6			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	Intersection	WASHINGTON PL & BEDFORD/CENTRE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1					2	1	1	2	1
Lane Group	L	LTR	R					T	R	L	LT	R
Volume (vph)	612	408	155					918	171	258	237	76
% Heavy Vehicles	0	0	0					0	0	0	0	0
PHF	0.93	0.93	0.93					0.81	0.81	0.95	0.95	0.95
Pretimed/Actuated (P/A)	P	P	P					P	P	P	P	P
Startup Lost Time	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3					3	3	3	3	3
Unit Extension	3.0	3.0	3.0					3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	100	0	0				0	0	17	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	12.0
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	0	0	0					0	0	0	0	0
Minimum Pedestrian Time		15.1						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 33.0	G =	G =	G =	G = 30.0	G = 12.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	494	611	159					1133	190	136	385	80
Lane Group Capacity	561	581	449					1091	487	238	386	188
v/c Ratio	0.88	1.05	0.35					1.04	0.39	0.57	1.00	0.43
Green Ratio	0.37	0.37	0.37					0.33	0.33	0.13	0.13	0.13
Uniform Delay d_1	26.7	28.5	20.7					30.0	23.0	36.6	39.0	35.8
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	0.50
Incremental Delay d_2	17.8	51.6	2.2					37.7	2.3	9.6	45.2	6.9
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	1.000
Control Delay	44.4	80.1	22.9					67.7	25.3	46.2	84.2	42.7
Lane Group LOS	D	F	C					E	C	D	F	D
Approach Delay	59.0						61.7			70.1		
Approach LOS	E						E			E		
Intersection Delay	62.2			Intersection LOS						E		

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	BEDFORD AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	2	0	1	1	0			
Lane Group		LTR			LTR		L	LTR				
Volume (vph)	164	294	358	7	133	27	453	1	1			
% Heavy Vehicles	0	0	0	0	0	0	2	2	2			
PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.90	0.90	0.90			
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A			
Startup Lost Time		2.0			2.0		2.0	2.0				
Extension of Effective 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	75	0	36	75	0	0	75	0	0			
Lane Width		12.0			12.0		12.0	12.0				
Parking/Grade/Parking	N	10	N	N	-6	N	N	2	Y			
Parking/Hour									10			
Bus Stops/Hour		0			0		0	0				
Minimum Pedestrian Time		15.1			16.1			12.4				

Phasing	EB Only	WB Only	03	04	NB Only	06	07	08
Timing	G = 33.5	G = 10.0	G =	G =	G = 20.0	G =	G =	G =
	Y = 5.5	Y = 5.5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		1054			225		277	228				
Lane Group Capacity		1158			396		394	336				
v/c Ratio		0.91			0.57		0.70	0.68				
Green Ratio		0.42			0.13		0.25	0.25				
Uniform Delay d_1		21.8			33.0		27.3	27.1				
Delay Factor k		0.43			0.16		0.27	0.25				
Incremental Delay d_2		10.7			1.9		5.6	5.4				
PF Factor		1.000			1.000		1.000	1.000				
Control Delay		32.5			34.9		32.9	32.5				
Lane Group LOS		C			C		C	C				
Approach Delay	32.5			34.9			32.7					
Approach LOS	C			C			C					
Intersection Delay	32.9			Intersection LOS						C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	M. Southern
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	ARENA PEAK HOUR

Site Information

Intersection	BEDFORD AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: LOGAN 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)		255	40	1	193	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	283	44	1	214	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	1		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	1	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		6			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)		1		2				
C (m) (veh/h)		1229		617				
v/c		0.00		0.00				
95% queue length		0.00		0.01				
Control Delay (s/veh)		7.9		10.9				
LOS		A		B				
Approach Delay (s/veh)	--	--	10.9					
Approach LOS	--	--	B					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	M. Southern
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	ARENA PEAK HOUR

Site Information

Intersection	BEDFORD AVE & FULTON ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: FULTON 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)		213	42	1	166	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	236	46	1	184	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	27		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	30	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		6			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)		1		31				
C (m) (veh/h)		1277		548				
v/c		0.00		0.06				
95% queue length		0.00		0.18				
Control Delay (s/veh)		7.8		12.0				
LOS		A		B				
Approach Delay (s/veh)	--	--	12.0					
Approach LOS	--	--	B					

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SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	Intersection	CRAWFORD ST & BEDFORD AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume (vph)	1	54	159	17	63	2	100	1	46	2	3	3
% Heavy Vehicles	5	5	5	1	1	1	3	3	3	0	0	0
PHF	0.92	0.92	0.92	0.89	0.89	0.89	0.74	0.74	0.74	0.40	0.40	0.40
Pretimed/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	
Extension of Effective 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	25	0	16	25	0	0	25	0	5	25	0	0
Lane Width		16.0			12.0			14.0			10.0	
Parking/Grade/Parking	N	10	N	N	-6	Y	N	8	N	N	-6	Y
Parking/Hour						5						5
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		14.5			7.8			12.3			20.3	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 15.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 50.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		215			92			191			19	
Lane Group Capacity		460			416			634			638	
v/c Ratio		0.47			0.22			0.30			0.03	
Green Ratio		0.30			0.30			0.50			0.50	
Uniform Delay d_1		14.2			13.1			7.4			6.3	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		3.4			1.2			1.2			0.1	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		17.6			14.3			8.6			6.4	
Lane Group LOS		B			B			A			A	
Approach Delay	17.6			14.3			8.6			6.4		
Approach LOS	B			B			A			A		
Intersection Delay	13.3			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0	0	2	1	0	3	0	0	2	1
Lane Group		TR		DefL	T	R		LTR		DefL	T	R
Volume (vph)		1324	197	118	143	360	10	612	29	74	140	17
% Heavy Vehicles		0	0	5	5	5	1	1	1	2	2	2
PHF		0.95	0.95	0.89	0.89	0.89	0.96	0.96	0.96	0.94	0.94	0.94
Pretimed/Actuated (P/A)		A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0		2.0	2.0	2.0		2.0		2.0	2.0	2.0
Extension of Effective Green		2.0		2.0	2.0	2.0		2.0		2.0	2.0	2.0
Arrival Type		3		3	3	3		3		3	3	3
Unit Extension		3.0		3.0	3.0	3.0		3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	200	0	0	200	0	0	200	0	0	45	0	0
Lane Width		13.0		12.0	10.0	13.0		12.0		11.0	12.0	12.0
Parking/Grade/Parking	N	-1	N	N	-6	N	N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0		0	0	0		0		0	0	0
Minimum Pedestrian Time		25.8			25.8			23.3			3.7	

Phasing	WB Only	EW Perm	Peds Only	04	NS Perm	06	07	08
Timing	G = 6.0	G = 63.5	G = 32.0	G =	G = 19.5	G =	G =	G =
	Y = 3	Y = 5.5	Y = 5	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 140.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		1601		133	161	404		678		79	149	18
Lane Group Capacity		1478		119	811	662		541		51	237	182
v/c Ratio		1.08		1.12	0.20	0.61		1.25		1.55	0.63	0.10
Green Ratio		0.45		0.52	0.52	0.52		0.14		0.14	0.14	0.14
Uniform Delay d_1		38.3		38.2	18.1	23.8		60.3		60.3	56.8	52.6
Delay Factor k		0.50		0.50	0.11	0.20		0.50		0.50	0.21	0.11
Incremental Delay d_2		49.5		117.6	0.1	1.7		128.6		323.2	5.2	0.2
PF Factor		1.000		1.000	1.000	1.000		1.000		1.000	1.000	1.000
Control Delay		87.7		155.8	18.3	25.4		188.8		383.4	62.1	52.8
Lane Group LOS		F		F	B	C		F		F	E	D
Approach Delay	87.7			48.6			188.8			164.6		
Approach LOS	F			D			F			F		
Intersection Delay	106.4			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst		Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0				0	2	0	0	2	1
Lane Group		LTR						LTR		DefL	T	R
Volume (vph)	69	491	105				10	612	29	74	140	17
% Heavy Vehicles	0	0	0				1	1	1	2	2	2
PHF	0.71	0.71	0.71				0.96	0.96	0.96	0.94	0.94	0.94
Pretimed/Actuated (P/A)	A	A	A				A	A	A	A	A	A
Startup Lost Time		2.0						2.0		2.0	2.0	2.0
Extension of Effective Green		2.0						2.0		2.0	2.0	2.0
Arrival Type		3						3		3	3	3
Unit Extension		3.0						3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	200	0	0				200	0	0	45	0	0
Lane Width		12.0						12.0		11.0	12.0	12.0
Parking/Grade/Parking	N	6	N				N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0						0		0	0	0
Minimum Pedestrian Time		25.8						23.3			3.7	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 72.5	G = 32.0	G =	G =	G = 19.5	G =	G =	G =
	Y = 5.5	Y = 5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 140.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		937						678		79	149	18
Lane Group Capacity		672						374		51	237	169
v/c Ratio		1.39						1.81		1.55	0.63	0.11
Green Ratio		0.23						0.14		0.14	0.14	0.14
Uniform Delay d_1		54.0						60.3		60.3	56.8	52.6
Delay Factor k		0.50						0.50		0.50	0.21	0.11
Incremental Delay d_2		186.5						376.2		323.2	5.2	0.3
PF Factor		1.000						1.000		1.000	1.000	1.000
Control Delay		240.5						436.5		383.4	62.1	52.9
Lane Group LOS		F						F		F	E	D
Approach Delay	240.5						436.5			164.6		
Approach LOS	F						F			F		
Intersection Delay	301.8			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	CENTRE AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2			2	0				1		1
Lane Group	L	T			TR					L		R
Volume (vph)	481	1529			526	567				23		95
% Heavy Vehicles	2	2			4	4				2		2
PHF	0.83	0.83			0.75	0.75				0.90		0.90
Pretimed/Actuated (P/A)	P	P			P	P				P		P
Startup Lost Time	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green	2.0	2.0			2.0					2.0		2.0
Arrival Type	3	3			3					3		3
Unit Extension	3.0	3.0			3.0					3.0		3.0
Ped/Bike/RTOR Volume	0	0		47	0	57				1414	0	10
Lane Width	12.0	11.0			11.0					12.0		12.0
Parking/Grade/Parking	N	4	Y	N	-2	Y				N	-5	Y
Parking/Hour			20			20						20
Bus Stops/Hour	0	0			0					0		0
Minimum Pedestrian Time		3.2			13.5						30.7	

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 24.5	G = 42.0	G =	G =	G = 7.0	G =	G =	G =
	Y = 5.5	Y = 5.5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	580	1842			1381					26		94
Lane Group Capacity	503	2177			1160					127		221
v/c Ratio	1.15	0.85			1.19					0.20		0.43
Green Ratio	0.80	0.80			0.47					0.08		0.41
Uniform Delay d_1	27.5	5.6			24.0					38.9		18.9
Delay Factor k	0.50	0.50			0.50					0.50		0.50
Incremental Delay d_2	89.6	4.3			94.5					3.6		5.9
PF Factor	1.000	1.000			1.000					1.000		1.000
Control Delay	117.1	9.9			118.5					42.5		24.8
Lane Group LOS	F	A			F					D		C
Approach Delay	35.5			118.5						28.6		
Approach LOS	D			F						C		
Intersection Delay	64.5			Intersection LOS						E		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	AM PEAK HOUR

Site Information

Intersection	CENTRE AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: CENTRE AVENUE | North/South Street: LOGAN 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)		1552			1084	9
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	1724	0	0	1204	10
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						9
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	10
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								10
C (m) (veh/h)								440
v/c								0.02
95% queue length								0.07
Control Delay (s/veh)								13.4
LOS								B
Approach Delay (s/veh)	--	--				13.4		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	*M. Southern*
Agency/Co.	*TRANS ASSOCIATES*
Date Performed	*12/9/2005*
Analysis Time Period	*ARENA PEAK HOUR*

Site Information

Intersection	*CENTRE AVE & FULTON ST*
Jurisdiction	*CITY OF PITTSBURGH*
Analysis Year	*2008 COMBINED CONDITIONS*

Project Description *AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT*

East/West Street: *CENTRE AVENUE* | North/South Street: *FULTON 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)		645			497	61
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	716	0	0	552	67
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						16
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	17
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								17
C (m) (veh/h)								686
v/c								0.02
95% queue length								0.08
Control Delay (s/veh)								10.4
LOS								B
Approach Delay (s/veh)	--	--				10.4		
Approach LOS	--	--				B		

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SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	Intersection	CENTRE AVE & EXIT
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2			2		1		0			
Lane Group		T			T		L	LR				
Volume (vph)		278			513		580		367			
% Heavy Vehicles		2			4		2		2			
PHF		0.83			0.75		0.90		0.90			
Pretimed/Actuated (P/A)		P			P		P		P			
Startup Lost Time		2.0			2.0		2.0	2.0				
Extension of Effective 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		124	0		0	0	37			
Lane Width		11.0			11.0		12.0	12.0				
Parking/Grade/Parking	N	4	Y	N	-2	Y	N	0	N			
Parking/Hour			20			20						
Bus Stops/Hour		0			0		0	0				
Minimum Pedestrian Time		3.2			14.0			3.2				

Phasing	Thru Only	02	03	04	NB Only	06	07	08
Timing	G = 34.0	G =	G =	G =	G = 45.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		335			684		522	489				
Lane Group Capacity		1028			1039		797	735				
v/c Ratio		0.33			0.66		0.65	0.67				
Green Ratio		0.38			0.38		0.50	0.50				
Uniform Delay d_1		19.9			23.2		16.7	16.9				
Delay Factor k		0.50			0.50		0.50	0.50				
Incremental Delay d_2		0.8			3.3		4.2	4.7				
PF Factor		1.000			1.000		1.000	1.000				
Control Delay		20.7			26.5		20.9	21.6				
Lane Group LOS		C			C		C	C				
Approach Delay	20.7			26.5			21.2					
Approach LOS	C			C			C					
Intersection Delay	22.9			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	Intersection	CENTRE AVE & CRAWFORD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Lane Group		LT	R	L	TR			LTR			LTR	
Volume (vph)	67	109	469	25	165	24	257	113	51	24	89	136
% Heavy Vehicles	3	3	3	5	5	5	1	1	1	2	2	2
PHF	0.89	0.89	0.89	0.88	0.88	0.88	0.84	0.84	0.84	0.94	0.94	0.94
Pretimed/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			2.0			2.0	
Extension of Effective Green		2.0	2.0	2.0	2.0			2.0			2.0	
Arrival Type		3	3	3	3			3			3	
Unit Extension		3.0	3.0	3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	50	0	47	50	0	2	50	0	5	50	0	14
Lane Width		15.0	16.0	11.0	11.0			14.0			13.0	
Parking/Grade/Parking	N	-4	Y	N	8	Y	N	5	N	N	-6	N
Parking/Hour			10			10						
Bus Stops/Hour		0	0	0	0			0			0	
Minimum Pedestrian Time		22.8			13.5			14.8			14.8	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 36.0	G =	G =	G =	G = 44.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		197	474	28	213			496			251	
Lane Group Capacity		592	520	349	501			546			733	
v/c Ratio		0.33	0.91	0.08	0.43			0.91			0.34	
Green Ratio		0.40	0.40	0.40	0.40			0.49			0.49	
Uniform Delay d_1		18.7	25.5	16.7	19.5			21.1			14.1	
Delay Factor k		0.50	0.50	0.50	0.50			0.50			0.50	
Incremental Delay d_2		1.5	22.7	0.4	2.6			21.5			1.3	
PF Factor		1.000	1.000	1.000	1.000			1.000			1.000	
Control Delay		20.2	48.2	17.2	22.1			42.6			15.4	
Lane Group LOS		C	D	B	C			D			B	
Approach Delay	40.0			21.6			42.6			15.4		
Approach LOS	D			C			D			B		
Intersection Delay	34.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & DEVILLERS ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume (vph)	42	212	5	2	217	19	5	1	1	7	2	24
% Heavy Vehicles	6	6	6	9	9	9	0	0	0	3	3	3
PHF	0.71	0.71	0.71	0.88	0.88	0.88	0.50	0.50	0.50	0.75	0.75	0.75
Pretimed/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	
Extension of Effective 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	25	0	1	25	0	2	25	0	0	25	0	2
Lane Width		16.0			10.0			11.0			11.0	
Parking/Grade/Parking	N	-2	N	N	-1	Y	N	0	Y	N	-6	Y
Parking/Hour						5			5			5
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		11.4			12.9			14.6			13.4	

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = 27.0	G = 18.0	G =	G =	G = 19.0	G =	G =	G =
	Y = 6	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		364			268			14			41	
Lane Group Capacity		1113			428			280			283	
v/c Ratio		0.33			0.63			0.05			0.14	
Green Ratio		0.64			0.34			0.24			0.24	
Uniform Delay d_1		6.6			22.3			23.5			24.1	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.8			6.8			0.3			1.1	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		7.4			29.0			23.9			25.2	
Lane Group LOS		A			C			C			C	
Approach Delay	7.4			29.0			23.9			25.2		
Approach LOS	A			C			C			C		
Intersection Delay	17.2			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & DINWIDDLE ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		1	0	0	1		0		0			
Lane Group		TR			LT			LR				
Volume (vph)		193	27	69	178		25		66			
% Heavy Vehicles		6	6	9	9		1		1			
PHF		0.71	0.71	0.88	0.88		0.75		0.75			
Pretimed/Actuated (P/A)		P	P	P	P		P		P			
Startup Lost Time		2.0			2.0			2.0				
Extension of Effective Green		2.0			2.0			2.0				
Arrival Type		3			3			3				
Unit Extension		3.0			3.0			3.0				
Ped/Bike/RTOR Volume	25	0	3	0	0		25	0	0			
Lane Width		16.0			16.0			16.0				
Parking/Grade/Parking	N	-2	N	N	-1	N	N	4	Y			
Parking/Hour									5			
Bus Stops/Hour		0			0			0				
Minimum Pedestrian Time		15.9			12.7			13.4				

Phasing	EW Perm	WB Only	03	04	NB Only	06	07	08
Timing	G = 27.0	G = 18.0	G =	G =	G = 19.0	G =	G =	G =
	Y = 6	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		306			280			121				
Lane Group Capacity		611			921			348				
v/c Ratio		0.50			0.30			0.35				
Green Ratio		0.34			0.64			0.24				
Uniform Delay d_1		21.1			6.5			25.3				
Delay Factor k		0.50			0.50			0.50				
Incremental Delay d_2		2.9			0.9			2.7				
PF Factor		1.000			1.000			1.000				
Control Delay		24.0			7.4			28.1				
Lane Group LOS		C			A			C				
Approach Delay	24.0			7.4			28.1					
Approach LOS	C			A			C					
Intersection Delay	18.1			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FIFTH AVE & WASHINGTON/CHATHAM
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes				0	2	1	1	1			1	2
Lane Group					LT	R	L	T			T	R
Volume (vph)				58	923	302	94	398			109	145
% Heavy Vehicles				4	4	4	1	1			1	1
PHF				0.84	0.84	0.84	0.87	0.87			0.89	0.89
Pretimed/Actuated (P/A)				P	P	P	P	P			P	P
Startup Lost Time					2.0	2.0	2.0	2.0			2.0	2.0
Extension of Effective Green					2.0	2.0	2.0	2.0			2.0	2.0
Arrival Type					3	3	3	3			3	3
Unit Extension					3.0	3.0	3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume				88	0	30	0	0		159	0	0
Lane Width					11.0	12.0	10.0	9.0			11.0	12.0
Parking/Grade/Parking				Y	-2	Y	N	-6	N	N	-2	N
Parking/Hour				20		20						
Bus Stops/Hour					0	0	0	0			0	0
Minimum Pedestrian Time					25.7			3.2			16.2	

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = 40.0	G =	G =	G =	G = 29.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate					1168	324	108	457			122	163
Lane Group Capacity					1372	515	356	569			599	728
v/c Ratio					0.85	0.63	0.30	0.80			0.20	0.22
Green Ratio					0.50	0.50	0.36	0.36			0.36	0.36
Uniform Delay d_1					17.4	14.6	18.3	22.9			17.6	17.7
Delay Factor k					0.50	0.50	0.50	0.50			0.50	0.50
Incremental Delay d_2					6.8	5.7	2.2	11.4			0.8	0.7
PF Factor					1.000	1.000	1.000	1.000			1.000	1.000
Control Delay					24.2	20.3	20.5	34.4			18.3	18.4
Lane Group LOS					C	C	C	C			B	B
Approach Delay				23.4			31.7			18.4		
Approach LOS				C			C			B		
Intersection Delay	24.8			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FORBES AVE & ARMSTRONG TUNNEL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0				0		2			
Lane Group		TR						LR	R			
Volume (vph)		791	314				55		563			
% Heavy Vehicles		4	4				1		1			
PHF		0.95	0.95				0.87		0.87			
Pretimed/Actuated (P/A)		P	P				P		P			
Startup Lost Time		2.0						2.0	2.0			
Extension of Effective Green		2.0						2.0	2.0			
Arrival Type		3						3	3			
Unit Extension		3.0						3.0	3.0			
Ped/Bike/RTOR Volume	50	0	0				0	0	31			
Lane Width		11.0						11.0	11.0			
Parking/Grade/Parking	N	3	N				N	0	N			
Parking/Hour												
Bus Stops/Hour		0						0	0			
Minimum Pedestrian Time		17.3						3.2				

Phasing	EB Only	02	03	04	NB Only	06	07	08
Timing	G = 41.0	G =	G =	G =	G = 29.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		1164						338	336			
Lane Group Capacity		1442						516	892			
v/c Ratio		0.81						0.66	0.38			
Green Ratio		0.51						0.36	0.36			
Uniform Delay d_1		16.2						21.3	18.8			
Delay Factor k		0.50						0.50	0.50			
Incremental Delay d_2		4.9						6.4	1.2			
PF Factor		1.000						1.000	1.000			
Control Delay		21.2						27.7	20.0			
Lane Group LOS		C						C	C			
Approach Delay	21.2						23.9					
Approach LOS	C						C					
Intersection Delay	22.2			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FORBES AVE & CHATHAM/McANULTY
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0					1	1	0	1	
Lane Group	L	TR						T	R		LT	
Volume (vph)	455	838	58					92	86	144	19	
% Heavy Vehicles	2	2	2					0	0	1	1	
PHF	0.86	0.86	0.86					0.88	0.88	0.90	0.90	
Pretimed/Actuated (P/A)	P	P	P					P	P	P	P	
Startup Lost Time	2.0	2.0						2.0	2.0		2.0	
Extension of Effective Green	2.0	2.0						2.0	2.0		2.0	
Arrival Type	3	3						3	3		3	
Unit Extension	3.0	3.0						3.0	3.0		3.0	
Ped/Bike/RTOR Volume	38	0	0				138	0	9	21	0	
Lane Width	10.0	11.0						10.0	11.0		10.0	
Parking/Grade/Parking	N	3	N				N	-6	N	N	10	N
Parking/Hour												
Bus Stops/Hour	0	0						0	0		0	
Minimum Pedestrian Time		13.9						13.0			12.3	

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = 43.0	G =	G =	G =	G = 27.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	529	1041						105	88		181	
Lane Group Capacity	787	1614						555	429		299	
v/c Ratio	0.67	0.64						0.19	0.21		0.61	
Green Ratio	0.54	0.54						0.34	0.34		0.34	
Uniform Delay d_1	13.4	13.1						18.8	18.9		22.1	
Delay Factor k	0.50	0.50						0.50	0.50		0.50	
Incremental Delay d_2	4.5	2.0						0.8	1.1		8.8	
PF Factor	1.000	1.000						1.000	1.000		1.000	
Control Delay	17.9	15.1						19.5	19.9		30.9	
Lane Group LOS	B	B						B	B		C	
Approach Delay	16.1						19.7			30.9		
Approach LOS	B						B			C		
Intersection Delay	17.8			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & BLVD OF ALLIES
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	1		2	0	0	2	0		2	0
Lane Group		LT	R		TR			LTR			TR	
Volume (vph)	64	446	300		385	81	31	711	147		878	74
% Heavy Vehicles	0	0	0		0	0	0	0	0		0	0
PHF	0.77	0.77	0.77		0.83	0.83	0.83	0.83	0.83		0.78	0.78
Pretimed/Actuated (P/A)	P	P	P		P	P	P	P	P		P	P
Startup Lost Time		2.0	2.0		2.0			2.0			2.0	
Extension of Effective Green		2.0	2.0		2.0			2.0			2.0	
Arrival Type		3	3		3			3			3	
Unit Extension		3.0	3.0		3.0			3.0			3.0	
Ped/Bike/RTOR Volume	100	0	7	100	0	0	100	0	0	100	0	0
Lane Width		11.0	12.0		12.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	-2	N	N	1	N	N	-1	N
Parking/Hour												
Bus Stops/Hour		0	0		0			0			0	
Minimum Pedestrian Time		18.9			17.9			28.9			20.1	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 33.0	G =	G =	G =	G = 46.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 6	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25

Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		662	381		562			1071			1221	
Lane Group Capacity		867	547		1158			1284			1598	
v/c Ratio		0.76	0.70		0.49			0.83			0.76	
Green Ratio		0.37	0.37		0.37			0.51			0.51	
Uniform Delay d_1		25.1	24.2		22.0			18.7			17.6	
Delay Factor k		0.50	0.50		0.50			0.50			0.50	
Incremental Delay d_2		6.3	7.2		1.5			6.5			3.5	
PF Factor		1.000	1.000		1.000			1.000			1.000	
Control Delay		31.4	31.4		23.4			25.2			21.2	
Lane Group LOS		C	C		C			C			C	
Approach Delay	31.4			23.4			25.2			21.2		
Approach LOS	C			C			C			C		
Intersection Delay	25.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & FIRST AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes				0		0		2	1	1	2	
Lane Group					LR			T	R	L	T	
Volume (vph)				248		15		886	641	64	781	
% Heavy Vehicles				4		4		3	3	3	3	
PHF				0.85		0.85		0.82	0.82	0.85	0.85	
Pretimed/Actuated (P/A)				P		P		P	P	P	P	
Startup Lost Time					2.0			2.0	2.0	2.0	2.0	
Extension of Effective Green					2.0			2.0	2.0	2.0	2.0	
Arrival Type					3			3	3	3	3	
Unit Extension					3.0			3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume				0	0	0	100	0	0	0	0	
Lane Width					12.0			11.0	12.0	10.0	12.0	
Parking/Grade/Parking				N	2	N	N	3	N	N	-3	N
Parking/Hour												
Bus Stops/Hour					0			0	0	0	0	
Minimum Pedestrian Time					18.7			12.9			3.2	

Phasing	WB Only	02	03	04	SB Only	NS Perm	07	08
Timing	G = 29.0	G =	G =	G =	G = 3.0	G = 45.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 3	Y = 5	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate					310			1080	782	75	919	
Lane Group Capacity					497			1505	1147	174	1818	
v/c Ratio					0.62			0.72	0.68	0.43	0.51	
Green Ratio					0.32			0.50	0.88	0.57	0.57	
Uniform Delay d_1					25.9			17.5	1.7	11.8	11.8	
Delay Factor k					0.50			0.50	0.50	0.50	0.50	
Incremental Delay d_2					5.8			3.0	3.3	7.6	1.0	
PF Factor					1.000			1.000	1.000	1.000	1.000	
Control Delay					31.7			20.5	5.0	19.4	12.8	
Lane Group LOS					C			C	A	B	B	
Approach Delay				31.7			14.0			13.3		
Approach LOS				C			B			B		
Intersection Delay	15.5			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & FORT PITT/1-376
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1				1	1		2			1	1
Lane Group	L				TR	R		T			T	R
Volume (vph)	269				309	445		955			797	232
% Heavy Vehicles	4				2	2		0			1	1
PHF	0.67				0.93	0.93		0.88			0.87	0.87
Pretimed/Actuated (P/A)	P				P	P		P			P	P
Startup Lost Time	2.0				2.0	2.0		2.0			2.0	2.0
Extension of Effective Green	2.0				2.0	2.0		2.0			2.0	2.0
Arrival Type	3				3	3		3			3	3
Unit Extension	3.0				3.0	3.0		3.0			3.0	3.0
Ped/Bike/RTOR Volume	100	0		0	0	0	0	0		0	0	0
Lane Width	12.0				13.0	12.0		10.0			12.0	12.0
Parking/Grade/Parking	N	0	N	N	2	N	N	3	N	N	-1	N
Parking/Hour												
Bus Stops/Hour	0				0	0		0			0	0
Minimum Pedestrian Time		17.6			3.2			3.2			3.2	

Phasing	EB Only	WB Only	03	04	Thru & RT	06	07	08
Timing	G = 18.0	G = 21.0	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 6	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	401				356	454		1085			916	267
Lane Group Capacity	312				396	329		1164			662	562
v/c Ratio	1.29				0.90	1.38		0.93			1.38	0.48
Green Ratio	0.20				0.23	0.23		0.39			0.39	0.39
Uniform Delay d_1	36.0				33.5	34.5		26.4			27.5	20.6
Delay Factor k	0.50				0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2	150.5				25.8	189.0		14.4			182.0	2.9
PF Factor	1.000				1.000	1.000		1.000			1.000	1.000
Control Delay	186.5				59.3	223.5		40.8			209.5	23.5
Lane Group LOS	F				E	F		D			F	C
Approach Delay	186.5			151.3			40.8			167.5		
Approach LOS	F			F			D			F		
Intersection Delay	126.4			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	SECOND AVE/COURT & ROSS ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0		1	1	0	1	0	1	1	0
Lane Group		LTR			T	R		LTR		L	TR	
Volume (vph)	18	183	9		353	300	9	492	56	242	98	20
% Heavy Vehicles	3	3	3		3	3	4	4	4	7	7	7
PHF	0.85	0.85	0.85		0.92	0.92	0.87	0.87	0.87	0.85	0.85	0.85
Pretimed/Actuated (P/A)	P	P	P		P	P	P	P	P	P	P	P
Startup Lost Time		2.0			2.0	2.0		2.0		2.0	2.0	
Extension of Effective Green		2.0			2.0	2.0		2.0		2.0	2.0	
Arrival Type		3			3	3		3		3	3	
Unit Extension		3.0			3.0	3.0		3.0		3.0	3.0	
Ped/Bike/RTOR Volume	50	0	1	50	0	0	50	0	6	50	0	0
Lane Width		13.0			11.0	14.0		14.0		10.0	10.0	
Parking/Grade/Parking	Y	-2	Y	N	5	N	N	2	Y	N	-3	N
Parking/Hour	10		10						10			
Bus Stops/Hour		0			0	0		0		0	0	
Minimum Pedestrian Time		13.0			13.0			12.5			8.5	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 20.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 70.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		245			384	326		633		285	139	
Lane Group Capacity		309			447	383		806		318	815	
v/c Ratio		0.79			0.86	0.85		0.79		0.90	0.17	
Green Ratio		0.29			0.29	0.29		0.56		0.56	0.56	
Uniform Delay d_1		23.1			23.7	23.6		12.2		13.7	7.6	
Delay Factor k		0.50			0.50	0.50		0.50		0.50	0.50	
Incremental Delay d_2		18.6			18.9	20.6		7.6		29.8	0.5	
PF Factor		1.000			1.000	1.000		1.000		1.000	1.000	
Control Delay		41.7			42.6	44.2		19.8		43.5	8.0	
Lane Group LOS		D			D	D		B		D	A	
Approach Delay	41.7			43.3			19.8			31.9		
Approach LOS	D			D			B			C		
Intersection Delay	33.3			Intersection LOS						C		

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FRIDAY CASINO PEAK HOUR

SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	LIBERTY AVE & SEVENTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0		3		1					
Lane Group		TR			T		L					
Volume (vph)		173	308		154		155					
% Heavy Vehicles		4	4		3		5					
PHF		0.78	0.78		0.86		0.81					
Pretimed/Actuated (P/A)		P	P		P		P					
Startup Lost Time		2.0			2.0		2.0					
Extension of Effective Green		2.0			2.0		2.0					
Arrival Type		3			3		3					
Unit Extension		3.0			3.0		3.0					
Ped/Bike/RTOR Volume	100	0	0	0	0		0	0				
Lane Width		11.0			11.0		12.0					
Parking/Grade/Parking	N	0	N	N	0	N	N	-2	N			
Parking/Hour												
Bus Stops/Hour		0			0		0					
Minimum Pedestrian Time		17.5			3.2			3.2				

Phasing	Thru & RT	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 9.0	G = 24.0	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		617			179		191					
Lane Group Capacity		1316			2248		536					
v/c Ratio		0.47			0.08		0.36					
Green Ratio		0.51			0.51		0.34					
Uniform Delay d_1		10.9			8.6		17.2					
Delay Factor k		0.50			0.50		0.50					
Incremental Delay d_2		1.2			0.1		1.8					
PF Factor		1.000			1.000		1.000					
Control Delay		12.1			8.7		19.1					
Lane Group LOS		B			A		B					
Approach Delay	12.1			8.7			19.1					
Approach LOS	B			A			B					
Intersection Delay	12.8			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	LIBERTY AVE & SMITHFIELD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0	0	3		1		1			
Lane Group		TR			LT		L		R			
Volume (vph)		168	5	8	95		59		112			
% Heavy Vehicles		7	7	8	8		0		0			
PHF		0.90	0.90	0.85	0.85		0.92		0.92			
Pretimed/Actuated (P/A)		P	P	P	P		P		P			
Startup Lost Time		2.0			2.0		2.0		2.0			
Extension of Effective 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	100	0	0	0	0		100	0	0			
Lane Width		11.0			11.0		11.0		13.0			
Parking/Grade/Parking	N	1	N	N	-1	N	N	-2	N			
Parking/Hour												
Bus Stops/Hour		0			0		0		0			
Minimum Pedestrian Time		17.2			3.2			17.7				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 6.0	G = 27.0	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 70.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		193			121		64		122			
Lane Group Capacity		1119			1983		544		475			
v/c Ratio		0.17			0.06		0.12		0.26			
Green Ratio		0.39			0.51		0.34		0.34			
Uniform Delay d_1		14.1			8.5		15.7		16.6			
Delay Factor k		0.50			0.50		0.50		0.50			
Incremental Delay d_2		0.3			0.1		0.4		1.3			
PF Factor		1.000			1.000		1.000		1.000			
Control Delay		14.5			8.6		16.2		17.9			
Lane Group LOS		B			A		B		B			
Approach Delay	14.5			8.6			17.3					
Approach LOS	B			A			B					
Intersection Delay	14.1			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	SEVENTH AVE & SMITHFIELD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	1	0		2	0	0	1	0
Lane Group		LTR			LTR			TR			LTR	
Volume (vph)	1	307	1	1	153	12		157	80	6	5	2
% Heavy Vehicles	2	2	2	9	9	9		1	1	100	100	100
PHF	0.92	0.92	0.92	0.94	0.94	0.94		0.79	0.79	0.82	0.82	0.82
Pretimed/Actuated (P/A)	P	P	P	P	P	P		P	P	P	P	P
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective 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	200	0	0	200	0	0	200	0	0	200	0	0
Lane Width		11.0			11.0			11.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		4.3			12.8			12.8			12.8	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 29.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 70.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		336			177			300			15	
Lane Group Capacity		1219			614			1209			297	
v/c Ratio		0.28			0.29			0.25			0.05	
Green Ratio		0.41			0.41			0.43			0.43	
Uniform Delay d_1		13.6			13.6			12.8			11.7	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.6			1.2			0.5			0.3	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		14.1			14.8			13.3			12.0	
Lane Group LOS		B			B			B			B	
Approach Delay	14.1			14.8			13.3			12.0		
Approach LOS	B			B			B			B		
Intersection Delay	13.9			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	GRANT ST & LIBERTY AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	1	0	1	1	0		3	0		2	0
Lane Group	L	TR		L	TR			TR			TR	
Volume (vph)	186	18	36	17	16	1		425	29		385	40
% Heavy Vehicles	5	5	5	21	21	21		2	2		1	1
PHF	0.88	0.88	0.88	0.77	0.77	0.77		0.84	0.84		0.89	0.89
Pretimed/Actuated (P/A)	P	P	P	P	P	P		P	P		P	P
Startup Lost Time	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival Type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width	11.0	11.0		12.0	12.0			11.0			13.0	
Parking/Grade/Parking	N	1	N	N	-2	N	N	-2	N	N	1	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0			0			0	
Minimum Pedestrian Time		20.6			20.6			26.3			24.8	

Phasing	WB Only	WB Only	EB Only	04	Thru & RT	Thru & RT	07	08
Timing	G = 24.0	G = 19.0	G = 31.0	G =	G = 37.0	G = 16.0	G =	G =
	Y = 5	Y = 5	Y = 6	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 153.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	211	61		22	22			541			478	
Lane Group Capacity	586	285		388	443			1658			1223	
v/c Ratio	0.36	0.21		0.06	0.05			0.33			0.39	
Green Ratio	0.20	0.20		0.31	0.31			0.38			0.38	
Uniform Delay d_1	52.5	50.8		36.7	36.6			33.7			34.6	
Delay Factor k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental Delay d_2	1.7	1.7		0.3	0.2			0.5			0.9	
PF Factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control Delay	54.2	52.6		37.0	36.8			34.2			35.6	
Lane Group LOS	D	D		D	D			C			D	
Approach Delay	53.8			36.9			34.2			35.6		
Approach LOS	D			D			C			D		
Intersection Delay	38.8			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	GRANT ST & ELEVENTH ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		2				1	2			2	0
Lane Group	L		R				L	T			TR	
Volume (vph)	43		131				104	508			294	36
% Heavy Vehicles	1		1				2	2			0	0
PHF	0.82		0.82				0.89	0.89			0.77	0.77
Pretimed/Actuated (P/A)	P						P	P			P	P
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	
Arrival Type	3		3				3	3			3	
Unit Extension	3.0		3.0				3.0	3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0				0	0		0	0	0
Lane Width	11.0		12.0				11.0	12.0			12.0	
Parking/Grade/Parking	N	-1	N				N	-1	N	N	1	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	
Minimum Pedestrian Time		3.2						3.2			23.2	

Phasing	EB Only	Peds Only	03	04	NB Only	Thru & RT	NB Only	08
Timing	G = 24.0	G = 19.0	G =	G =	G = 31.0	G = 37.0	G = 16.0	G =
	Y = 5	Y = 5	Y =	Y =	Y = 6	Y = 5	Y = 5	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 153.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	52		160				117	571			429	
Lane Group Capacity	245		268				475	1992			770	
v/c Ratio	0.21		0.60				0.25	0.29			0.56	
Green Ratio	0.16		0.10				0.31	0.62			0.24	
Uniform Delay d_1	56.3		65.4				39.7	13.4			50.8	
Delay Factor k	0.50		0.50				0.50	0.50			0.50	
Incremental Delay d_2	2.0		9.5				1.2	0.4			2.9	
PF Factor	1.000		1.000				1.000	1.000			1.000	
Control Delay	58.2		74.9				41.0	13.7			53.7	
Lane Group LOS	E		E				D	B			D	
Approach Delay	70.8						18.4			53.7		
Approach LOS	E						B			D		
Intersection Delay	38.1			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	GRANT ST & SEVENTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	2	1	1	2	0	1	2	0
Lane Group		LTR			LT	R	L	TR		L	TR	
Volume (vph)	5	347	34	35	201	185	44	227	82	231	186	14
% Heavy Vehicles	4	4	4	3	3	3	2	2	2	2	2	2
PHF	0.66	0.66	0.66	0.90	0.90	0.90	0.87	0.87	0.87	0.87	0.87	0.87
Pretimed/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	2.0		2.0	2.0	
Extension of Effective Green		2.0			2.0	2.0	2.0	2.0		2.0	2.0	
Arrival Type		3			3	3	3	3		3	3	
Unit Extension		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width		11.0			10.0	13.0	11.0	11.0		11.0	11.0	
Parking/Grade/Parking	N	5	N	N	-5	N	N	-1	N	N	2	N
Parking/Hour												
Bus Stops/Hour		0			0	0	0	0		0	0	
Minimum Pedestrian Time		17.6			17.9			18.9			17.6	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 27.0	G =	G =	G =	G = 15.0	G = 35.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 3	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		586			262	206	51	355		266	230	
Lane Group Capacity		822			717	732	610	1134		543	1169	
v/c Ratio		0.71			0.37	0.28	0.08	0.31		0.49	0.20	
Green Ratio		0.30			0.30	0.52	0.59	0.39		0.59	0.39	
Uniform Delay d_1		28.0			24.8	12.0	8.0	19.1		9.6	18.2	
Delay Factor k		0.50			0.50	0.50	0.50	0.50		0.50	0.50	
Incremental Delay d_2		5.2			1.4	1.0	0.3	0.7		3.1	0.4	
PF Factor		1.000			1.000	1.000	1.000	1.000		1.000	1.000	
Control Delay		33.3			26.2	13.0	8.2	19.9		12.7	18.6	
Lane Group LOS		C			C	B	A	B		B	B	
Approach Delay	33.3			20.4			18.4			15.4		
Approach LOS	C			C			B			B		
Intersection Delay	22.6			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	GRANT ST & SIXTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	2	0	1	2	0	1	2	0
Lane Group		LTR			LTR		L	TR		L	TR	
Volume (vph)	37	205	15	125	154	134	37	183	361	62	125	67
% Heavy Vehicles	1	1	1	3	3	3	0	0	0	2	2	2
PHF	0.64	0.64	0.64	0.72	0.72	0.72	0.75	0.75	0.75	0.68	0.68	0.68
Pretimed/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		2.0	2.0	
Extension of Effective Green		2.0			2.0		2.0	2.0		2.0	2.0	
Arrival Type		3			3		3	3		3	3	
Unit Extension		3.0			3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	30	0	0	25	0	0	16	0	0	38	0	0
Lane Width		12.0			11.0		12.0	10.0		12.0	10.0	
Parking/Grade/Parking	N	4	N	N	-5	N	N	-1	N	N	2	N
Parking/Hour												
Bus Stops/Hour		0			0		0	0		0	0	
Minimum Pedestrian Time		17.2			17.1			15.8			12.5	

Phasing	EB Only	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 5.0	G = 34.0	G =	G =	G = 7.0	G = 28.0	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 3	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		401			574		49	725		91	283	
Lane Group Capacity		486			933		401	847		222	858	
v/c Ratio		0.83			0.62		0.12	0.86		0.41	0.33	
Green Ratio		0.47			0.38		0.42	0.31		0.42	0.31	
Uniform Delay d_1		20.8			22.7		15.7	29.1		17.7	23.8	
Delay Factor k		0.50			0.50		0.50	0.50		0.50	0.50	
Incremental Delay d_2		14.7			3.0		0.6	10.8		5.5	1.0	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		35.5			25.7		16.3	39.9		23.3	24.8	
Lane Group LOS		D			C		B	D		C	C	
Approach Delay	35.5			25.7			38.4			24.4		
Approach LOS	D			C			D			C		
Intersection Delay	32.0			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	SIXTH AVE & ROSS ST/BIGELOW
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	3	0	0	2	0	0	2	0	0	2	
Lane Group		LTR			LTR			LTR			LT	
Volume (vph)	104	637	25	7	267	46	41	56	367	38	106	
% Heavy Vehicles	1	1	1	2	2	2	2	2	2	1	1	
PHF	0.82	0.82	0.82	0.93	0.93	0.93	0.77	0.77	0.77	0.87	0.87	
Pretimed/Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective 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	200	0	3	200	0	0	200	0	37	200	0	
Lane Width		11.0			11.0			12.0			11.0	
Parking/Grade/Parking	N	5	N	N	-6	N	N	-1	N	N	-1	N
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		18.3			17.8			20.8			8.0	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 29.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 70.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		931			344			555			166	
Lane Group Capacity		1497			1215			937			988	
v/c Ratio		0.62			0.28			0.59			0.17	
Green Ratio		0.43			0.43			0.41			0.41	
Uniform Delay d_1		15.6			13.0			15.9			12.9	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		2.0			0.6			2.7			0.4	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		17.5			13.6			18.7			13.3	
Lane Group LOS		B			B			B			B	
Approach Delay	17.5			13.6			18.7			13.3		
Approach LOS	B			B			B			B		
Intersection Delay	16.8			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	WASHINGTON PL & BEDFORD/CENTRE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1					2	1	1	1	1
Lane Group	L	LTR	R					T	R	L	LT	R
Volume (vph)	342	101	54					848	77	154	83	79
% Heavy Vehicles	0	0	0					0	0	0	0	0
PHF	0.81	0.81	0.81					0.80	0.80	0.66	0.66	0.90
Pretimed/Actuated (P/A)	P	P	P					P	P	P	P	P
Startup Lost Time	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3					3	3	3	3	3
Unit Extension	3.0	3.0	3.0					3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	100	0	0				0	0	8	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	12.0
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	0	0	0					0	0	0	0	0
Minimum Pedestrian Time		15.1						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 20.0	G =	G =	G =	G = 29.0	G = 16.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	274	276	64					1060	86	182	177	88
Lane Group Capacity	383	391	284					1186	530	357	305	282
v/c Ratio	0.72	0.71	0.23					0.89	0.16	0.51	0.58	0.31
Green Ratio	0.25	0.25	0.25					0.36	0.36	0.20	0.20	0.20
Uniform Delay d_1	27.4	27.3	23.8					24.0	17.3	28.5	29.0	27.3
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	0.50
Incremental Delay d_2	10.9	10.3	1.8					10.5	0.7	5.1	7.8	2.9
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	1.000
Control Delay	38.3	37.6	25.7					34.5	17.9	33.6	36.8	30.2
Lane Group LOS	D	D	C					C	B	C	D	C
Approach Delay	36.7						33.3			34.2		
Approach LOS	D						C			C		
Intersection Delay	34.4			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	BEDFORD AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	2	0	0	1	0			
Lane Group		LTR			LTR			LTR				
Volume (vph)	27	144	7	11	87	7	634	1	1			
% Heavy Vehicles	14	14	14	0	0	0	0	0	0			
PHF	0.91	0.91	0.91	0.74	0.74	0.74	0.90	0.90	0.90			
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A			
Startup Lost Time		2.0			2.0			2.0				
Extension of Effective Green		2.0			2.0			2.0				
Arrival Type		3			3			3				
Unit Extension		3.0			3.0			3.0				
Ped/Bike/RTOR Volume	75	0	0	75	0	0	75	0	0			
Lane Width		12.0			12.0			12.0				
Parking/Grade/Parking	N	10	N	N	-6	N	N	2	Y			
Parking/Hour									10			
Bus Stops/Hour		0			0			0				
Minimum Pedestrian Time		15.3			16.3			12.5				

Phasing	EB Only	WB Only	03	04	NB Only	06	07	08
Timing	G = 18.5	G = 10.0	G =	G =	G = 55.0	G =	G =	G =
	Y = 5.5	Y = 5.5	Y =	Y =	Y = 5.5	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		
Adjusted Flow Rate		196			142			706				
Lane Group Capacity		491			316			754				
v/c Ratio		0.40			0.45			0.94				
Green Ratio		0.19			0.10			0.55				
Uniform Delay d_1		35.9			42.4			20.9				
Delay Factor k		0.11			0.11			0.45				
Incremental Delay d_2		0.5			1.0			19.0				
PF Factor		1.000			1.000			1.000				
Control Delay		36.4			43.4			39.9				
Lane Group LOS		D			D			D				
Approach Delay	36.4			43.4			39.9					
Approach LOS	D			D			D					
Intersection Delay	39.7			Intersection LOS						D		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM CASINO PEAK HOUR

Site Information

Intersection	BEDFORD AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: LOGAN 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)		104	40	1	105	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	115	44	1	116	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	1		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	1	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)	6			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)		1		2				
C (m) (veh/h)		1418		818				
v/c		0.00		0.00				
95% queue length		0.00		0.01				
Control Delay (s/veh)		7.5		9.4				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.4					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM CASINO PEAK HOUR

Site Information

Intersection	BEDFORD AVE & FULTON ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: FULTON 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)		63	41	1	77	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	70	45	1	85	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	28		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	31	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		6			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)		1		32				
C (m) (veh/h)		1472		797				
v/c		0.00		0.04				
95% queue length		0.00		0.13				
Control Delay (s/veh)		7.4		9.7				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.7					
Approach LOS	--	--	A					

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CRAWFORD ST & BEDFORD AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Lane Group		LT	R		LTR			LTR			LTR	
Volume (vph)	1	32	28	9	35	1	42	2	18	1	1	1
% Heavy Vehicles	17	17	17	3	3	3	5	5	5	0	0	0
PHF	0.83	0.83	0.83	0.69	0.69	0.69	0.73	0.73	0.73	0.25	0.25	0.25
Pretimed/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			2.0	
Extension of Effective Green		2.0	2.0		2.0			2.0			2.0	
Arrival Type		3	3		3			3			3	
Unit Extension		3.0	3.0		3.0			3.0			3.0	
Ped/Bike/RTOR Volume	25	0	0	25	0	0	25	0	2	25	0	0
Lane Width		12.0	12.0		12.0			14.0			10.0	
Parking/Grade/Parking	N	10	N	N	-6	Y	N	8	N	N	-6	Y
Parking/Hour						5						5
Bus Stops/Hour		0	0		0			0			0	
Minimum Pedestrian Time		14.5			7.8			12.3			20.3	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 20.0	G =	G =	G =	G = 20.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 50.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		40	34		65			83			12	
Lane Group Capacity		553	458		571			520			509	
v/c Ratio		0.07	0.07		0.11			0.16			0.02	
Green Ratio		0.40	0.40		0.40			0.40			0.40	
Uniform Delay d_1		9.3	9.3		9.4			9.6			9.1	
Delay Factor k		0.50	0.50		0.50			0.50			0.50	
Incremental Delay d_2		0.3	0.3		0.4			0.7			0.1	
PF Factor		1.000	1.000		1.000			1.000			1.000	
Control Delay		9.5	9.6		9.8			10.3			9.2	
Lane Group LOS		A	A		A			B			A	
Approach Delay	9.6			9.8			10.3			9.2		
Approach LOS	A			A			B			A		
Intersection Delay	9.9			Intersection LOS						A		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0	1	2	0	0	3	0	0	2	1
Lane Group		TR		L	TR			LTR		DefL	T	R
Volume (vph)		1315	36	90	140	422	15	317	34	69	40	8
% Heavy Vehicles		1	1	3	3	3	1	1	1	4	4	4
PHF		0.70	0.70	0.73	0.73	0.73	0.80	0.80	0.80	0.78	0.78	0.78
Pretimed/Actuated (P/A)		A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0		2.0	2.0			2.0		2.0	2.0	2.0
Extension of Effective Green		2.0		2.0	2.0			2.0		2.0	2.0	2.0
Arrival Type		3		3	3			3		3	3	3
Unit Extension		3.0		3.0	3.0			3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	5	0	0	5	0	0	0	0	0	4	0	0
Lane Width		13.0		12.0	10.0			12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	-1	N	N	-6	N	N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0		0	0			0		0	0	0
Minimum Pedestrian Time		23.7			23.7			21.2			3.2	

Phasing	WB Only	EW Perm	Peds Only	04	NS Perm	06	07	08
Timing	G = 5.0	G = 51.0	G = 27.0	G =	G = 18.0	G =	G =	G =
	Y = 3	Y = 5.5	Y = 5	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 120.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		1930		123	770			457		88	51	10
Lane Group Capacity		1417		128	1323			582		87	250	211
v/c Ratio		1.36		0.96	0.58			0.79		1.01	0.20	0.05
Green Ratio		0.43		0.49	0.49			0.15		0.15	0.15	0.15
Uniform Delay d_1		34.5		28.0	21.7			49.1		51.0	44.7	43.7
Delay Factor k		0.50		0.47	0.17			0.33		0.50	0.11	0.11
Incremental Delay d_2		167.6		67.3	0.7			7.0		99.7	0.4	0.1
PF Factor		1.000		1.000	1.000			1.000		1.000	1.000	1.000
Control Delay		202.1		95.3	22.4			56.1		150.7	45.1	43.8
Lane Group LOS		F		F	C			E		F	D	D
Approach Delay	202.1			32.4			56.1			107.4		
Approach LOS	F			C			E			F		
Intersection Delay	134.3			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0				0	3	0	0	2	1
Lane Group		LTR						LTR		DefL	T	R
Volume (vph)	11	436	9				15	317	34	69	40	8
% Heavy Vehicles	0	0	0				1	1	1	4	4	4
PHF	0.56	0.56	0.56				0.80	0.80	0.80	0.78	0.78	0.78
Pretimed/Actuated (P/A)	A	A	A				A	A	A	A	A	A
Startup Lost Time		2.0						2.0		2.0	2.0	2.0
Extension of Effective Green		2.0						2.0		2.0	2.0	2.0
Arrival Type		3						3		3	3	3
Unit Extension		3.0						3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	5	0	0				0	0	0	4	0	0
Lane Width		12.0						12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	6	N				N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0						0		0	0	0
Minimum Pedestrian Time		23.7						21.2			3.2	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 59.0	G = 27.0	G =	G =	G = 18.0	G =	G =	G =
	Y = 5.5	Y = 5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 120.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		815						457		88	51	10
Lane Group Capacity		708						582		87	250	210
v/c Ratio		1.15						0.79		1.01	0.20	0.05
Green Ratio		0.22						0.15		0.15	0.15	0.15
Uniform Delay d_1		46.5						49.1		51.0	44.7	43.7
Delay Factor k		0.50						0.33		0.50	0.11	0.11
Incremental Delay d_2		83.7						7.0		99.7	0.4	0.1
PF Factor		1.000						1.000		1.000	1.000	1.000
Control Delay		130.2						56.1		150.7	45.1	43.8
Lane Group LOS		F						E		F	D	D
Approach Delay	130.2						56.1			107.4		
Approach LOS	F						E			F		
Intersection Delay	104.0			Intersection LOS						F		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2			2	0				1		1
Lane Group	L	T			TR					L		R
Volume (vph)	529	1462			495	463				25		147
% Heavy Vehicles	4	4			5	5				2		2
PHF	0.88	0.88			0.81	0.81				0.90		0.90
Pretimed/Actuated (P/A)	P	P			P	P				P		P
Startup Lost Time	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green	2.0	2.0			2.0					2.0		2.0
Arrival Type	3	3			3					3		3
Unit Extension	3.0	3.0			3.0					3.0		3.0
Ped/Bike/RTOR Volume	6	0		6	0	46				0	0	0
Lane Width	12.0	11.0			11.0					12.0		12.0
Parking/Grade/Parking	N	4	Y	N	-2	Y				N	-5	Y
Parking/Hour			20			20						20
Bus Stops/Hour	0	0			0					0		0
Minimum Pedestrian Time		3.2			13.2						21.2	

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 25.5	G = 33.0	G =	G =	G = 7.0	G =	G =	G =
	Y = 3.5	Y = 5.5	Y =	Y =	Y = 5.5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	601	1661			1126					28		163
Lane Group Capacity	577	2068			1044					143		555
v/c Ratio	1.04	0.80			1.08					0.20		0.29
Green Ratio	0.77	0.77			0.41					0.09		0.47
Uniform Delay d_1	22.2	5.4			23.5					33.9		12.8
Delay Factor k	0.50	0.50			0.50					0.50		0.50
Incremental Delay d_2	48.7	3.4			51.6					3.0		1.3
PF Factor	1.000	1.000			1.000					1.000		1.000
Control Delay	71.0	8.8			75.1					36.9		14.2
Lane Group LOS	E	A			E					D		B
Approach Delay	25.3			75.1						17.5		
Approach LOS	C			E						B		
Intersection Delay	40.5			Intersection LOS						D		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM CASINO PEAK HOUR

Site Information

Intersection	CENTRE AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: CENTRE AVENUE | North/South Street: LOGAN 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)		1499			943	19
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	1665	0	0	1047	21
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						15
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	16
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								16
C (m) (veh/h)								491
v/c								0.03
95% queue length								0.10
Control Delay (s/veh)								12.6
LOS								B
Approach Delay (s/veh)	--	--				12.6		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	PM CASINO PEAK HOUR

Site Information

Intersection	CENTRE AVE & FULTON ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: CENTRE AVENUE | North/South Street: FULTON 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)		429			126	40
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	476	0	0	140	44
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						11
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	12
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								12
C (m) (veh/h)								947
v/c								0.01
95% queue length								0.04
Control Delay (s/veh)								8.9
LOS								A
Approach Delay (s/veh)	--	--				8.9		
Approach LOS	--	--				A		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & EXIT
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2			2		1		0			
Lane Group		T			T		L	LR				
Volume (vph)		134			137		825		295			
% Heavy Vehicles		3			5		2		2			
PHF		0.90			0.90		0.90		0.90			
Pretimed/Actuated (P/A)		P			P		P		P			
Startup Lost Time		2.0			2.0		2.0	2.0				
Extension of Effective 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		124	0		0	0	30			
Lane Width		11.0			11.0		12.0	12.0				
Parking/Grade/Parking	N	4	Y	N	-2	Y	N	0	N			
Parking/Hour			20			20						
Bus Stops/Hour		0			0		0	0				
Minimum Pedestrian Time		3.2			13.9			3.2				

Phasing	Thru Only	02	03	04	NB Only	06	07	08
Timing	G = 28.5	G =	G =	G =	G = 40.5	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		149			152		624	587				
Lane Group Capacity		960			971		806	766				
v/c Ratio		0.16			0.16		0.77	0.77				
Green Ratio		0.36			0.36		0.51	0.51				
Uniform Delay d_1		17.5			17.6		16.0	15.9				
Delay Factor k		0.50			0.50		0.50	0.50				
Incremental Delay d_2		0.3			0.3		7.2	7.2				
PF Factor		1.000			1.000		1.000	1.000				
Control Delay		17.9			17.9		23.2	23.1				
Lane Group LOS		B			B		C	C				
Approach Delay	17.9			17.9			23.2					
Approach LOS	B			B			C					
Intersection Delay	22.1			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & CRAWFORD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	1	1	1	0	0	1	0	0	1	0
Lane Group		LT	R	L	TR			LTR			LTR	
Volume (vph)	13	84	328	14	90	11	50	67	33	14	43	21
% Heavy Vehicles	3	3	3	6	6	6	2	2	2	5	5	5
PHF	0.90	0.90	0.90	0.79	0.79	0.79	0.73	0.73	0.73	0.64	0.64	0.64
Pretimed/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			2.0			2.0	
Extension of Effective Green		2.0	2.0	2.0	2.0			2.0			2.0	
Arrival Type		3	3	3	3			3			3	
Unit Extension		3.0	3.0	3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	50	0	33	50	0	1	50	0	3	50	0	2
Lane Width		15.0	16.0	11.0	11.0			14.0			13.0	
Parking/Grade/Parking	N	-4	Y	N	8	Y	N	5	N	N	-6	N
Parking/Hour			10			10						
Bus Stops/Hour		0	0	0	0			0			0	
Minimum Pedestrian Time		22.8			13.5			14.8			14.8	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 35.0	G =	G =	G =	G = 35.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		107	328	18	127			201			119	
Lane Group Capacity		784	572	428	545			627			670	
v/c Ratio		0.14	0.57	0.04	0.23			0.32			0.18	
Green Ratio		0.44	0.44	0.44	0.44			0.44			0.44	
Uniform Delay d_1		13.5	16.9	12.9	14.1			14.7			13.7	
Delay Factor k		0.50	0.50	0.50	0.50			0.50			0.50	
Incremental Delay d_2		0.4	4.1	0.2	1.0			1.3			0.6	
PF Factor		1.000	1.000	1.000	1.000			1.000			1.000	
Control Delay		13.8	21.0	13.1	15.1			16.1			14.3	
Lane Group LOS		B	C	B	B			B			B	
Approach Delay	19.3			14.8			16.1			14.3		
Approach LOS	B			B			B			B		
Intersection Delay	17.2			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	CENTRE AVE & DEVILLERS ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume (vph)	28	117	4	4	106	17	2	1	1	1	1	13
% Heavy Vehicles	4	4	4	5	5	5	0	0	0	0	0	0
PHF	0.90	0.90	0.90	0.71	0.71	0.71	0.75	0.75	0.75	0.70	0.70	0.70
Pretimed/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	
Extension of Effective 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	25	0	0	25	0	2	25	0	0	25	0	1
Lane Width		16.0			10.0			11.0			11.0	
Parking/Grade/Parking	N	-2	N	N	-1	Y	N	0	Y	N	-6	Y
Parking/Hour						5			5			5
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		11.4			12.9			14.6			13.4	

Phasing	EW Perm	EB Only	03	04	NS Perm	06	07	08
Timing	G = 24.0	G = 21.0	G =	G =	G = 19.0	G =	G =	G =
	Y = 6	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		165			176			5			19	
Lane Group Capacity		1144			388			295			294	
v/c Ratio		0.14			0.45			0.02			0.06	
Green Ratio		0.64			0.30			0.24			0.24	
Uniform Delay d_1		5.8			22.7			23.4			23.6	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.3			3.8			0.1			0.4	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		6.1			26.5			23.5			24.0	
Lane Group LOS		A			C			C			C	
Approach Delay	6.1			26.5			23.5			24.0		
Approach LOS	A			C			C			C		
Intersection Delay	17.1			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	CENTRE AVE & DEVILLERS ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		1	0	0	1		0		0			
Lane Group		TR			LT			LR				
Volume (vph)		108	17	38	83		7		42			
% Heavy Vehicles		0	0	0	0		0		0			
PHF		0.85	0.85	0.66	0.66		0.80		0.80			
Pretimed/Actuated (P/A)		P	P	P	P		P		P			
Startup Lost Time		2.0			2.0			2.0				
Extension of Effective Green		2.0			2.0			2.0				
Arrival Type		3			3			3				
Unit Extension		3.0			3.0			3.0				
Ped/Bike/RTOR Volume	25	0	2	0	0		25	0	0			
Lane Width		16.0			16.0			16.0				
Parking/Grade/Parking	N	-2	N	N	-1	N	N	4	Y			
Parking/Hour									5			
Bus Stops/Hour		0			0			0				
Minimum Pedestrian Time		15.9			12.7			13.4				

Phasing	EW Perm	WB Only	03	04	NB Only	06	07	08
Timing	G = 24.0	G = 21.0	G =	G =	G = 19.0	G =	G =	G =
	Y = 6	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		145			184			61				
Lane Group Capacity		575			1149			347				
v/c Ratio		0.25			0.16			0.18				
Green Ratio		0.30			0.64			0.24				
Uniform Delay d_1		21.2			5.9			24.3				
Delay Factor k		0.50			0.50			0.50				
Incremental Delay d_2		1.1			0.3			1.1				
PF Factor		1.000			1.000			1.000				
Control Delay		22.3			6.2			25.4				
Lane Group LOS		C			A			C				
Approach Delay	22.3			6.2			25.4					
Approach LOS	C			A			C					
Intersection Delay	15.1			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FIFTH AVE & WASHINGTON/CHATHAM
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes				0	2	1	1	1			1	2
Lane Group					LT	R	L	T			T	R
Volume (vph)				6	839	123	12	243			69	104
% Heavy Vehicles				9	9	9	0	0			0	0
PHF				0.96	0.96	0.96	0.62	0.62			0.63	0.63
Pretimed/Actuated (P/A)				P	P	P	P	P			P	P
Startup Lost Time					2.0	2.0	2.0	2.0			2.0	2.0
Extension of Effective Green					2.0	2.0	2.0	2.0			2.0	2.0
Arrival Type					3	3	3	3			3	3
Unit Extension					3.0	3.0	3.0	3.0			3.0	3.0
Ped/Bike/RTOR Volume				4	0	12	0	0		0	0	0
Lane Width					11.0	12.0	10.0	9.0			11.0	12.0
Parking/Grade/Parking				Y	-2	Y	N	-6	N	N	-2	N
Parking/Hour				20		20						
Bus Stops/Hour					0	0	0	0			0	0
Minimum Pedestrian Time					25.2			3.2			15.2	

Phasing	WB Only	02	03	04	NS Perm	06	07	08
Timing	G = 39.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate					880	116	19	392			110	165
Lane Group Capacity					1279	523	423	594			626	974
v/c Ratio					0.69	0.22	0.04	0.66			0.18	0.17
Green Ratio					0.49	0.49	0.38	0.38			0.38	0.38
Uniform Delay d_1					15.8	11.8	15.9	20.8			16.7	16.7
Delay Factor k					0.50	0.50	0.50	0.50			0.50	0.50
Incremental Delay d_2					3.0	1.0	0.2	5.7			0.6	0.4
PF Factor					1.000	1.000	1.000	1.000			1.000	1.000
Control Delay					18.8	12.8	16.1	26.4			17.3	17.1
Lane Group LOS					B	B	B	C			B	B
Approach Delay				18.1			26.0			17.2		
Approach LOS				B			C			B		
Intersection Delay	19.9			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FORBES AVE & ARMSTRONG TUNNEL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0				0		2			
Lane Group		TR						LR	R			
Volume (vph)		522	216				48		318			
% Heavy Vehicles		5	5				0		0			
PHF		0.93	0.93				0.79		0.79			
Pretimed/Actuated (P/A)		P	P				P		P			
Startup Lost Time		2.0						2.0	2.0			
Extension of Effective Green		2.0						2.0	2.0			
Arrival Type		3						3	3			
Unit Extension		3.0						3.0	3.0			
Ped/Bike/RTOR Volume	50	0	0				0	0	18			
Lane Width		11.0						11.0	11.0			
Parking/Grade/Parking	N	3	N				N	0	N			
Parking/Hour												
Bus Stops/Hour		0						0	0			
Minimum Pedestrian Time		17.3						3.2				

Phasing	EB Only	02	03	04	NB Only	06	07	08
Timing	G = 41.0	G =	G =	G =	G = 29.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		793						221	220			
Lane Group Capacity		1426						527	902			
v/c Ratio		0.56						0.42	0.24			
Green Ratio		0.51						0.36	0.36			
Uniform Delay d_1		13.3						19.2	17.8			
Delay Factor k		0.50						0.50	0.50			
Incremental Delay d_2		1.6						2.4	0.6			
PF Factor		1.000						1.000	1.000			
Control Delay		14.9						21.6	18.5			
Lane Group LOS		B						C	B			
Approach Delay	14.9						20.0					
Approach LOS	B						C					
Intersection Delay	16.7			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	FORBES AVE & CHATHAM/McANULTY
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0					1	1	0	1	
Lane Group	L	TR						T	R		LT	
Volume (vph)	166	560	8					5	10	36	8	
% Heavy Vehicles	7	7	7					0	0	0	0	
PHF	0.81	0.81	0.81					0.75	0.75	0.72	0.72	
Pretimed/Actuated (P/A)	P	P	P					P	P	P	P	
Startup Lost Time	2.0	2.0						2.0	2.0		2.0	
Extension of Effective Green	2.0	2.0						2.0	2.0		2.0	
Arrival Type	3	3						3	3		3	
Unit Extension	3.0	3.0						3.0	3.0		3.0	
Ped/Bike/RTOR Volume	5	0	0				0	0	1	21	0	
Lane Width	10.0	11.0						10.0	11.0		10.0	
Parking/Grade/Parking	N	3	N				N	-6	N	N	10	N
Parking/Hour												
Bus Stops/Hour	0	0						0	0		0	
Minimum Pedestrian Time		13.7						12.2			12.3	

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = 45.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 Cycle Length C = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	205	701						7	12		61	
Lane Group Capacity	785	1626						514	452		381	
v/c Ratio	0.26	0.43						0.01	0.03		0.16	
Green Ratio	0.56	0.56						0.31	0.31		0.31	
Uniform Delay d_1	9.0	10.1						19.0	19.1		19.9	
Delay Factor k	0.50	0.50						0.50	0.50		0.50	
Incremental Delay d_2	0.8	0.8						0.0	0.1		0.9	
PF Factor	1.000	1.000						1.000	1.000		1.000	
Control Delay	9.8	10.9						19.0	19.2		20.8	
Lane Group LOS	A	B						B	B		C	
Approach Delay	10.7						19.1			20.8		
Approach LOS	B						B			C		
Intersection Delay	11.5			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	GRANT ST & BLVD OF ALLIES
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	1		2	0	0	2	0		2	0
Lane Group		LT	R		TR			LTR			TR	
Volume (vph)	23	106	84		112	28	20	574	31		692	42
% Heavy Vehicles	4	4	4		4	4	5	5	5		0	0
PHF	0.84	0.84	0.84		0.72	0.72	0.75	0.75	0.75		0.86	0.86
Pretimed/Actuated (P/A)	P	P	P		P	P	P	P	P		P	P
Startup Lost Time		2.0	2.0		2.0			2.0			2.0	
Extension of Effective Green		2.0	2.0		2.0			2.0			2.0	
Arrival Type		3	3		3			3			3	
Unit Extension		3.0	3.0		3.0			3.0			3.0	
Ped/Bike/RTOR Volume	100	0	4	100	0	0	100	0	0	100	0	0
Lane Width		11.0	12.0		12.0			11.0			11.0	
Parking/Grade/Parking	N	0	N	N	-2	N	N	1	N	N	-1	N
Parking/Hour												
Bus Stops/Hour		0	0		0			0			0	
Minimum Pedestrian Time		18.9			17.9			28.9			20.1	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 40.0	G =	G =	G =	G = 39.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 6	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		153	95		195			833			854	
Lane Group Capacity		1186	648		1345			1158			1359	
v/c Ratio		0.13	0.15		0.14			0.72			0.63	
Green Ratio		0.44	0.44		0.44			0.43			0.43	
Uniform Delay d_1		14.7	14.9		14.8			21.0			19.9	
Delay Factor k		0.50	0.50		0.50			0.50			0.50	
Incremental Delay d_2		0.2	0.5		0.2			3.9			2.2	
PF Factor		1.000	1.000		1.000			1.000			1.000	
Control Delay		15.0	15.3		15.1			24.9			22.1	
Lane Group LOS		B	B		B			C			C	
Approach Delay	15.1			15.1			24.9			22.1		
Approach LOS	B			B			C			C		
Intersection Delay	21.7			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	GRANT ST & FIRST AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes				0		0		2	1	1	2	
Lane Group					LR			T	R	L	T	
Volume (vph)				104		13		612	512	24	637	
% Heavy Vehicles				1		1		1	1	0	0	
PHF				0.78		0.78		0.80	0.80	0.83	0.83	
Pretimed/Actuated (P/A)				P		P		P	P	P	P	
Startup Lost Time					2.0			2.0	2.0	2.0	2.0	
Extension of Effective Green					2.0			2.0	2.0	2.0	2.0	
Arrival Type					3			3	3	3	3	
Unit Extension					3.0			3.0	3.0	3.0	3.0	
Ped/Bike/RTOR Volume				0	0	0	100	0	0	0	0	
Lane Width					12.0			11.0	12.0	10.0	12.0	
Parking/Grade/Parking				N	2	N	N	3	N	N	-3	N
Parking/Hour												
Bus Stops/Hour					0			0	0	0	0	
Minimum Pedestrian Time					18.7			12.9			3.2	

Phasing	WB Only	02	03	04	SB Only	NS Perm	07	08
Timing	G = 28.0	G =	G =	G =	G = 3.0	G = 46.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 3	Y = 5	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate					150			765	640	29	767	
Lane Group Capacity					492			1569	1170	281	1910	
v/c Ratio					0.30			0.49	0.55	0.10	0.40	
Green Ratio					0.31			0.51	0.88	0.58	0.58	
Uniform Delay d_1					23.6			14.3	1.3	9.1	10.4	
Delay Factor k					0.50			0.50	0.50	0.50	0.50	
Incremental Delay d_2					1.6			1.1	1.8	0.7	0.6	
PF Factor					1.000			1.000	1.000	1.000	1.000	
Control Delay					25.2			15.4	3.1	9.9	11.1	
Lane Group LOS					C			B	A	A	B	
Approach Delay				25.2			9.8			11.0		
Approach LOS				C			A			B		
Intersection Delay	11.2			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	GRANT ST & FORT PITT/1-376
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1				1	1		2			1	1
Lane Group	L				TR	R		T			T	R
Volume (vph)	169				123	349		605			583	158
% Heavy Vehicles	1				1	1		0			0	0
PHF	0.88				0.79	0.79		0.84			0.88	0.88
Pretimed/Actuated (P/A)	P				P	P		P			P	P
Startup Lost Time	2.0				2.0	2.0		2.0			2.0	2.0
Extension of Effective Green	2.0				2.0	2.0		2.0			2.0	2.0
Arrival Type	3				3	3		3			3	3
Unit Extension	3.0				3.0	3.0		3.0			3.0	3.0
Ped/Bike/RTOR Volume	100	0		0	0	0	0	0		0	0	0
Lane Width	12.0				13.0	12.0		10.0			12.0	12.0
Parking/Grade/Parking	N	0	N	N	2	N	N	3	N	N	-1	N
Parking/Hour												
Bus Stops/Hour	0				0	0		0			0	0
Minimum Pedestrian Time		17.6			3.2			3.2			3.2	

Phasing	EB Only	WB Only	03	04	Thru & RT	06	07	08
Timing	G = 19.0	G = 24.0	G =	G =	G = 31.0	G =	G =	G =
	Y = 5	Y = 5	Y =	Y =	Y = 6	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	192				178	420		720			663	180
Lane Group Capacity	339				453	380		1031			592	503
v/c Ratio	0.57				0.39	1.11		0.70			1.12	0.36
Green Ratio	0.21				0.27	0.27		0.34			0.34	0.34
Uniform Delay d_1	31.8				27.0	33.0		25.5			29.5	22.1
Delay Factor k	0.50				0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2	6.7				2.5	77.7		3.9			74.5	2.0
PF Factor	1.000				1.000	1.000		1.000			1.000	1.000
Control Delay	38.5				29.6	110.7		29.4			104.0	24.0
Lane Group LOS	D				C	F		C			F	C
Approach Delay	38.5			86.5			29.4			86.9		
Approach LOS	D			F			C			F		
Intersection Delay	65.3			Intersection LOS						E		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	SECOND AVE/COURT & ROSS ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/7/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0		1	1	0	1	0	1	1	0
Lane Group		LTR			T	R		LTR		L	TR	
Volume (vph)	1	43	2		102	139	1	448	31	177	65	5
% Heavy Vehicles	2	2	2		5	5	5	5	5	5	5	5
PHF	0.66	0.66	0.66		0.75	0.75	0.92	0.92	0.92	0.86	0.86	0.86
Pretimed/Actuated (P/A)	P	P	P		P	P	P	P	P	P	P	P
Startup Lost Time		2.0			2.0	2.0		2.0		2.0	2.0	
Extension of Effective Green		2.0			2.0	2.0		2.0		2.0	2.0	
Arrival Type		3			3	3		3		3	3	
Unit Extension		3.0			3.0	3.0		3.0		3.0	3.0	
Ped/Bike/RTOR Volume	50	0	0	50	0	0	50	0	3	50	0	0
Lane Width		13.0			11.0	14.0		14.0		10.0	10.0	
Parking/Grade/Parking	Y	-2	Y	N	5	N	N	2	Y	N	-3	N
Parking/Hour	10		10						10			
Bus Stops/Hour		0			0	0		0		0	0	
Minimum Pedestrian Time		13.0			13.0			12.5			8.5	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 24.0	G =	G =	G =	G = 35.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		70			136	185		518		206	82	
Lane Group Capacity		472			526	458		723		316	760	
v/c Ratio		0.15			0.26	0.40		0.72		0.65	0.11	
Green Ratio		0.34			0.34	0.34		0.50		0.50	0.50	
Uniform Delay d_1		15.9			16.6	17.5		13.6		13.0	9.2	
Delay Factor k		0.50			0.50	0.50		0.50		0.50	0.50	
Incremental Delay d_2		0.7			1.2	2.6		6.0		10.0	0.3	
PF Factor		1.000			1.000	1.000		1.000		1.000	1.000	
Control Delay		16.6			17.8	20.2		19.6		23.0	9.5	
Lane Group LOS		B			B	C		B		C	A	
Approach Delay	16.6			19.2			19.6			19.2		
Approach LOS	B			B			B			B		
Intersection Delay	19.2			Intersection LOS						B		

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SATURDAY CASINO PEAK HOUR

SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	LIBERTY AVE & SEVENTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0		3		1					
Lane Group		TR			T		L					
Volume (vph)		188	228		131		150					
% Heavy Vehicles		7	7		3		4					
PHF		0.87	0.87		0.88		0.84					
Pretimed/Actuated (P/A)		P	P		P		P					
Startup Lost Time		2.0			2.0		2.0					
Extension of Effective Green		2.0			2.0		2.0					
Arrival Type		3			3		3					
Unit Extension		3.0			3.0		3.0					
Ped/Bike/RTOR Volume	100	0	0	0	0		0	0				
Lane Width		11.0			11.0		12.0					
Parking/Grade/Parking	N	0	N	N	0	N	N	-2	N			
Parking/Hour												
Bus Stops/Hour		0			0		0					
Minimum Pedestrian Time		17.5			3.2			3.2				

Phasing	Thru & RT	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 9.0	G = 24.0	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		478			149		179					
Lane Group Capacity		1312			2248		541					
v/c Ratio		0.36			0.07		0.33					
Green Ratio		0.51			0.51		0.34					
Uniform Delay d_1		10.2			8.5		17.0					
Delay Factor k		0.50			0.50		0.50					
Incremental Delay d_2		0.8			0.1		1.6					
PF Factor		1.000			1.000		1.000					
Control Delay		10.9			8.6		18.7					
Lane Group LOS		B			A		B					
Approach Delay	10.9			8.6			18.7					
Approach LOS	B			A			B					
Intersection Delay	12.2			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	LIBERTY AVE & SMITHFIELD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0	0	3		1		1			
Lane Group		TR			LT		L		R			
Volume (vph)		182	6	5	78		53		101			
% Heavy Vehicles		8	8	7	7		0		0			
PHF		0.87	0.87	0.89	0.89		0.88		0.88			
Pretimed/Actuated (P/A)		P	P	P	P		P		P			
Startup Lost Time		2.0			2.0		2.0		2.0			
Extension of Effective 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	100	0	0	0	0		100	0	0			
Lane Width		11.0			11.0		11.0		13.0			
Parking/Grade/Parking	N	1	N	N	-1	N	N	-2	N			
Parking/Hour												
Bus Stops/Hour		0			0		0		0			
Minimum Pedestrian Time		17.2			3.2			17.7				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 6.0	G = 27.0	G =	G =	G = 24.0	G =	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 5	Y =	Y =	Y =

Duration of Analysis (hrs) = 0.25 | Cycle Length C = 70.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		216			94		60		115			
Lane Group Capacity		1108			2012		544		475			
v/c Ratio		0.19			0.05		0.11		0.24			
Green Ratio		0.39			0.51		0.34		0.34			
Uniform Delay d_1		14.3			8.5		15.7		16.5			
Delay Factor k		0.50			0.50		0.50		0.50			
Incremental Delay d_2		0.4			0.0		0.4		1.2			
PF Factor		1.000			1.000		1.000		1.000			
Control Delay		14.7			8.5		16.1		17.7			
Lane Group LOS		B			A		B		B			
Approach Delay	14.7			8.5			17.2					
Approach LOS	B			A			B					
Intersection Delay	14.4			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	SEVENTH AVE & SMITHFIELD ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	1	0		2	0	0	1	0
Lane Group		LTR			LTR			TR			LTR	
Volume (vph)	2	223	3	2	146	16		135	49	6	1	4
% Heavy Vehicles	5	5	5	3	3	3		0	0	27	27	27
PHF	0.85	0.85	0.85	0.85	0.85	0.85		0.90	0.90	0.55	0.55	0.55
Pretimed/Actuated (P/A)	P	P	P	P	P	P		P	P	P	P	P
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective 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	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width		11.0			11.0			11.0			12.0	
Parking/Grade/Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		3.7			12.2			12.2			12.2	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 29.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		268			193			204			20	
Lane Group Capacity		1180			649			1271			448	
v/c Ratio		0.23			0.30			0.16			0.04	
Green Ratio		0.41			0.41			0.43			0.43	
Uniform Delay d_1		13.3			13.7			12.3			11.7	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.4			1.2			0.3			0.2	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		13.7			14.9			12.5			11.8	
Lane Group LOS		B			B			B			B	
Approach Delay	13.7			14.9			12.5			11.8		
Approach LOS	B			B			B			B		
Intersection Delay	13.6			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & LIBERTY AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	2	1	0	1	1	0		3	0		2	0
Lane Group	L	TR		L	TR			TR			TR	
Volume (vph)	174	12	26	7	8	1		387	21		289	45
% Heavy Vehicles	6	6	6	25	25	25		2	2		1	1
PHF	0.89	0.89	0.89	0.67	0.67	0.67		0.85	0.85		0.77	0.77
Pretimed/Actuated (P/A)	P	P	P	P	P	P		P	P		P	P
Startup Lost Time	2.0	2.0		2.0	2.0			2.0			2.0	
Extension of Effective Green	2.0	2.0		2.0	2.0			2.0			2.0	
Arrival Type	3	3		3	3			3			3	
Unit Extension	3.0	3.0		3.0	3.0			3.0			3.0	
Ped/Bike/RTOR Volume	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width	11.0	11.0		12.0	12.0			11.0			13.0	
Parking/Grade/Parking	N	1	N	N	-2	N	N	-2	N	N	1	N
Parking/Hour												
Bus Stops/Hour	0	0		0	0			0			0	
Minimum Pedestrian Time		20.6			20.6			26.3			24.8	

Phasing	WB Only	WB Only	EB Only	04	Thru & RT	Thru & RT	07	08
Timing	G = 26.0	G = 19.0	G = 23.0	G =	G = 35.0	G = 24.0	G =	G =
	Y = 5	Y = 5	Y = 6	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 153.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	196	42		10	13			480			433	
Lane Group Capacity	430	209		392	443			1838			1335	
v/c Ratio	0.46	0.20		0.03	0.03			0.26			0.32	
Green Ratio	0.15	0.15		0.33	0.33			0.42			0.42	
Uniform Delay d_1	59.3	56.9		35.0	35.0			29.1			29.9	
Delay Factor k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental Delay d_2	3.5	2.2		0.1	0.1			0.3			0.6	
PF Factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control Delay	62.7	59.1		35.1	35.1			29.4			30.6	
Lane Group LOS	E	E		D	D			C			C	
Approach Delay	62.1			35.1			29.4			30.6		
Approach LOS	E			D			C			C		
Intersection Delay	36.6			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & ELEVENTH ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1		2				1	2			2	0
Lane Group	L		R				L	T			TR	
Volume (vph)	49		135				115	447			200	23
% Heavy Vehicles	2		2				3	3			1	1
PHF	0.80		0.80				0.92	0.92			0.83	0.83
Pretimed/Actuated (P/A)	P						P	P			P	P
Startup Lost Time	2.0		2.0				2.0	2.0			2.0	
Extension of Effective Green	2.0		2.0				2.0	2.0			2.0	
Arrival Type	3		3				3	3			3	
Unit Extension	3.0		3.0				3.0	3.0			3.0	
Ped/Bike/RTOR Volume	0	0	0				0	0		0	0	0
Lane Width	11.0		12.0				11.0	12.0			12.0	
Parking/Grade/Parking	N	-1	N				N	-1	N	N	1	N
Parking/Hour												
Bus Stops/Hour	0		0				0	0			0	
Minimum Pedestrian Time		3.2						3.2			23.2	

Phasing	EB Only	Peds Only	03	04	NB Only	Thru & RT	NB Only	08
Timing	G = 26.0	G = 19.0	G =	G =	G = 23.0	G = 35.0	G = 24.0	G =
	Y = 5	Y = 5	Y =	Y =	Y = 6	Y = 5	Y = 5	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 153.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	61		169				125	486			269	
Lane Group Capacity	263		398				471	1931			722	
v/c Ratio	0.23		0.42				0.27	0.25			0.37	
Green Ratio	0.17		0.16				0.31	0.61			0.23	
Uniform Delay d_1	54.9		58.3				40.0	13.9			49.7	
Delay Factor k	0.50		0.50				0.50	0.50			0.50	
Incremental Delay d_2	2.1		3.3				1.4	0.3			1.5	
PF Factor	1.000		1.000				1.000	1.000			1.000	
Control Delay	56.9		61.6				41.4	14.2			51.2	
Lane Group LOS	E		E				D	B			D	
Approach Delay	60.3						19.8			51.2		
Approach LOS	E						B			D		
Intersection Delay	35.8			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & SEVENTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0	0	2	1	1	2	0	1	2	0
Lane Group		LTR			LT	R	L	TR		L	TR	
Volume (vph)	5	248	33	50	171	187	59	235	79	146	168	8
% Heavy Vehicles	6	6	6	1	1	1	1	1	1	2	2	2
PHF	0.87	0.87	0.87	0.78	0.78	0.78	0.89	0.89	0.89	0.81	0.81	0.81
Pretimed/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	2.0		2.0	2.0	
Extension of Effective Green		2.0			2.0	2.0	2.0	2.0		2.0	2.0	
Arrival Type		3			3	3	3	3		3	3	
Unit Extension		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	100	0	0	100	0	0	100	0	0	100	0	0
Lane Width		11.0			10.0	13.0	11.0	11.0		11.0	11.0	
Parking/Grade/Parking	N	5	N	N	-5	N	N	-1	N	N	2	N
Parking/Hour												
Bus Stops/Hour		0			0	0	0	0		0	0	
Minimum Pedestrian Time		17.6			17.9			18.9			17.6	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 35.0	G =	G =	G =	G = 7.0	G = 35.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 3	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		329			283	240	66	353		180	217	
Lane Group Capacity		1040			957	747	485	1149		409	1176	
v/c Ratio		0.32			0.30	0.32	0.14	0.31		0.44	0.18	
Green Ratio		0.39			0.39	0.52	0.50	0.39		0.50	0.39	
Uniform Delay d_1		19.2			19.0	12.3	11.9	19.1		13.1	18.1	
Delay Factor k		0.50			0.50	0.50	0.50	0.50		0.50	0.50	
Incremental Delay d_2		0.8			0.8	1.1	0.6	0.7		3.4	0.3	
PF Factor		1.000			1.000	1.000	1.000	1.000		1.000	1.000	
Control Delay		20.0			19.8	13.5	12.4	19.8		16.5	18.5	
Lane Group LOS		B			B	B	B	B		B	B	
Approach Delay	20.0			16.9			18.6			17.6		
Approach LOS	B			B			B			B		
Intersection Delay	18.1			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	GRANT ST & SIXTH AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	2	0	1	2	0	1	2	0
Lane Group		LTR			LTR		L	TR		L	TR	
Volume (vph)	37	159	29	83	169	123	26	213	266	46	196	8
% Heavy Vehicles	3	3	3	1	1	1	1	1	1	1	1	1
PHF	0.88	0.88	0.88	0.84	0.84	0.84	0.80	0.80	0.80	0.86	0.86	0.86
Pretimed/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		2.0	2.0	
Extension of Effective Green		2.0			2.0		2.0	2.0		2.0	2.0	
Arrival Type		3			3		3	3		3	3	
Unit Extension		3.0			3.0		3.0	3.0		3.0	3.0	
Ped/Bike/RTOR Volume	64	0	0	90	0	0	72	0	0	82	0	0
Lane Width		12.0			11.0		12.0	10.0		12.0	10.0	
Parking/Grade/Parking	N	4	N	N	-5	N	N	-1	N	N	2	N
Parking/Hour												
Bus Stops/Hour		0			0		0	0		0	0	
Minimum Pedestrian Time		17.4			17.6			16.2			12.8	

Phasing	EB Only	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 5.0	G = 30.0	G =	G =	G = 7.0	G = 32.0	G =	G =
	Y = 3	Y = 5	Y =	Y =	Y = 3	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		256			446		32	598		53	237	
Lane Group Capacity		459			863		459	953		300	1050	
v/c Ratio		0.56			0.52		0.07	0.63		0.18	0.23	
Green Ratio		0.42			0.33		0.47	0.36		0.47	0.36	
Uniform Delay d_1		19.6			24.2		13.2	24.1		14.2	20.3	
Delay Factor k		0.50			0.50		0.50	0.50		0.50	0.50	
Incremental Delay d_2		4.8			2.2		0.3	3.1		1.3	0.5	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		24.5			26.4		13.5	27.2		15.4	20.8	
Lane Group LOS		C			C		B	C		B	C	
Approach Delay	24.5			26.4			26.5			19.8		
Approach LOS	C			C			C			B		
Intersection Delay	24.9			Intersection LOS						C		

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SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	SIXTH AVE & ROSS ST/BIGELOW
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	3	0	0	2	0	0	2	0	0	2	
Lane Group		LTR			LTR			LTR			LT	
Volume (vph)	84	486	8	5	232	28	44	29	278	36	96	
% Heavy Vehicles	1	1	1	2	2	2	1	1	1	1	1	
PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.79	0.79	0.79	0.81	0.81	
Pretimed/Actuated (P/A)	P	P	P	P	P	P	P	P	P	P	P	
Startup Lost Time		2.0			2.0			2.0			2.0	
Extension of Effective 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	100	0	1	100	0	3	100	0	28	100	0	
Lane Width		11.0			11.0			12.0			11.0	
Parking/Grade/Parking	N	5	N	N	-6	N	N	-1	N	N	-1	N
Parking/Hour												
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		17.7			17.2			20.2			7.5	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 32.0	G =	G =	G =	G = 27.0	G =	G =	G =
	Y = 5.5	Y =	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		648			312			409			163	
Lane Group Capacity		1643			1341			915			953	
v/c Ratio		0.39			0.23			0.45			0.17	
Green Ratio		0.46			0.46			0.39			0.39	
Uniform Delay d_1		12.6			11.5			16.0			14.1	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.7			0.4			1.6			0.4	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		13.3			11.9			17.5			14.5	
Lane Group LOS		B			B			B			B	
Approach Delay	13.3			11.9			17.5			14.5		
Approach LOS	B			B			B			B		
Intersection Delay	14.3			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	WASHINGTON PL & BEDFORD/CENTRE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	1	1					2	1	1	1	1
Lane Group	L	LTR	R					T	R	L	LT	R
Volume (vph)	228	87	39					847	79	82	85	61
% Heavy Vehicles	0	0	0					0	0	0	0	0
PHF	0.91	0.91	0.91					0.71	0.71	0.86	0.86	0.90
Pretimed/Actuated (P/A)	P	P	P					P	P	P	P	P
Startup Lost Time	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Extension of Effective Green	2.0	2.0	2.0					2.0	2.0	2.0	2.0	2.0
Arrival Type	3	3	3					3	3	3	3	3
Unit Extension	3.0	3.0	3.0					3.0	3.0	3.0	3.0	3.0
Ped/Bike/RTOR Volume	100	0	0				0	0	8	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	12.0
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	0	0	0					0	0	0	0	0
Minimum Pedestrian Time		15.1						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 17.0	G =	G =	G =	G = 29.0	G = 19.0	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y = 5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	173	176	41					1193	100	48	146	68
Lane Group Capacity	325	333	230					1186	530	424	362	335
v/c Ratio	0.53	0.53	0.18					1.01	0.19	0.11	0.40	0.20
Green Ratio	0.21	0.21	0.21					0.36	0.36	0.24	0.24	0.24
Uniform Delay d_1	28.0	27.9	25.8					25.5	17.4	23.9	25.7	24.4
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	0.50
Incremental Delay d_2	6.1	5.9	1.7					27.6	0.8	0.5	3.3	1.4
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	1.000
Control Delay	34.1	33.8	27.5					53.1	18.2	24.4	29.0	25.8
Lane Group LOS	C	C	C					D	B	C	C	C
Approach Delay	33.3						50.4			27.4		
Approach LOS	C						D			C		
Intersection Delay	43.8			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	BEDFORD AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2	0	1	1	0	1	1	0			
Lane Group	L	LTR		L	TR		L	LTR				
Volume (vph)	72	183	15	10	88	16	689	4	1			
% Heavy Vehicles	2	2	2	0	0	0	2	2	2			
PHF	0.76	0.76	0.76	0.74	0.74	0.74	0.90	0.90	0.90			
Pretimed/Actuated (P/A)	A	A	A	A	A	A	A	A	A			
Startup Lost Time	2.0	2.0		2.0	2.0		2.0	2.0				
Extension of Effective Green	2.0	2.0		2.0	2.0		2.0	2.0				
Arrival Type	3	3		3	3		3	3				
Unit Extension	3.0	3.0		3.0	3.0		3.0	3.0				
Ped/Bike/RTOR Volume	75	0	0	75	0	0	75	0	0			
Lane Width	12.0	12.0		12.0	12.0		12.0	12.0				
Parking/Grade/Parking	N	10	N	N	-6	N	N	2	Y			
Parking/Hour									10			
Bus Stops/Hour	0	0		0	0		0	0				
Minimum Pedestrian Time		15.1			16.1			12.3				

Phasing	EB Only	WB Only	03	04	NB Only	06	07	08
Timing	G = 18.5	G = 10.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 5.5	Y = 5.5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 70.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	48	308		14	141		421	350				
Lane Group Capacity	400	780		198	240		563	480				
v/c Ratio	0.12	0.39		0.07	0.59		0.75	0.73				
Green Ratio	0.26	0.26		0.14	0.14		0.36	0.36				
Uniform Delay d_1	19.6	21.2		26.0	28.1		19.7	19.6				
Delay Factor k	0.11	0.11		0.11	0.18		0.30	0.29				
Incremental Delay d_2	0.1	0.3		0.2	3.7		5.5	5.6				
PF Factor	1.000	1.000		1.000	1.000		1.000	1.000				
Control Delay	19.7	21.5		26.1	31.8		25.2	25.1				
Lane Group LOS	B	C		C	C		C	C				
Approach Delay	21.2			31.3			25.2					
Approach LOS	C			C			C					
Intersection Delay	24.8			Intersection LOS						C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	SAT CASINO PEAK HOUR

Site Information

Intersection	BEDFORD AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: LOGAN 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)		156	40	1	126	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	173	44	1	140	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	1		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	1	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		6			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)		1		2				
C (m) (veh/h)		1350		751				
v/c		0.00		0.00				
95% queue length		0.00		0.01				
Control Delay (s/veh)		7.7		9.8				
LOS		A		A				
Approach Delay (s/veh)	--	--	9.8					
Approach LOS	--	--	A					

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	

Site Information

Intersection	BEDFORD AVE & FULTON ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: BEDFORD AVENUE | North/South Street: FULTON 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)		115	41	1	97	
Peak-Hour Factor, PHF	1.00	0.90	0.90	0.90	0.90	1.00
Hourly Flow Rate, HFR (veh/h)	0	127	45	1	107	0
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	1	0
Configuration		T	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)	29		1			
Peak-Hour Factor, PHF	0.90	1.00	0.90	1.00	1.00	1.00
Hourly Flow Rate, HFR (veh/h)	32	0	1	0	0	0
Percent Heavy Vehicles	2	0	2	0	0	0
Percent Grade (%)		6			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)		1		33				
C (m) (veh/h)		1402		712				
v/c		0.00		0.05				
95% queue length		0.00		0.15				
Control Delay (s/veh)		7.6		10.3				
LOS		A		B				
Approach Delay (s/veh)	--	--	10.3					
Approach LOS	--	--	B					

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	CRAWFORD ST & BEDFORD AVE
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume (vph)	12	45	58	10	50	1	47	1	12	1	1	1
% Heavy Vehicles	1	1	1	2	2	2	3	3	3	0	0	0
PHF	0.86	0.86	0.86	0.77	0.77	0.77	0.63	0.63	0.63	0.25	0.25	0.25
Pretimed/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	
Extension of Effective 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	25	0	0	25	0	0	25	0	0	25	0	0
Lane Width		16.0			12.0			14.0			10.0	
Parking/Grade/Parking	N	10	N	N	-6	Y	N	8	N	N	-6	Y
Parking/Hour						5						5
Bus Stops/Hour		0			0			0			0	
Minimum Pedestrian Time		14.5			7.8			12.3			20.3	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 15.0	G =	G =	G =	G = 25.0	G =	G =	G =
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 50.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		133			79			96			12	
Lane Group Capacity		482			427			659			643	
v/c Ratio		0.28			0.19			0.15			0.02	
Green Ratio		0.30			0.30			0.50			0.50	
Uniform Delay d_1		13.4			13.0			6.7			6.3	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		1.4			1.0			0.5			0.1	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		14.8			13.9			7.2			6.4	
Lane Group LOS		B			B			A			A	
Approach Delay	14.8			13.9			7.2			6.4		
Approach LOS	B			B			A			A		
Intersection Delay	12.0			Intersection LOS						B		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes		2	0	1	2	0	0	3	0	0	2	1
Lane Group		TR		L	TR			LTR		DefL	T	R
Volume (vph)		1061	31	77	116	417	30	464	36	60	32	9
% Heavy Vehicles		1	1	4	4	4	1	1	1	5	5	5
PHF		0.84	0.84	0.72	0.72	0.72	0.90	0.90	0.90	0.87	0.87	0.87
Pretimed/Actuated (P/A)		A	A	A	A	A	A	A	A	A	A	A
Startup Lost Time		2.0		2.0	2.0			2.0		2.0	2.0	2.0
Extension of Effective Green		2.0		2.0	2.0			2.0		2.0	2.0	2.0
Arrival Type		3		3	3			3		3	3	3
Unit Extension		3.0		3.0	3.0			3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	63	0	0	119	0	0	135	0	0	47	0	0
Lane Width		13.0		12.0	10.0			12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	-1	N	N	-6	N	N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0		0	0			0		0	0	0
Minimum Pedestrian Time		24.2			24.6			22.2			3.6	

Phasing	WB Only	EW Perm	Peds Only	04	NS Perm	06	07	08
Timing	G = 6.0	G = 36.5	G = 20.0	G =	G = 19.0	G =	G =	G =
	Y = 3	Y = 5	Y = 5	Y =	Y = 5.5	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		
Adjusted Flow Rate		1300		107	740			589		69	37	10
Lane Group Capacity		1215		168	1116			722		85	314	247
v/c Ratio		1.07		0.64	0.66			0.82		0.81	0.12	0.04
Green Ratio		0.37		0.46	0.46			0.19		0.19	0.19	0.19
Uniform Delay d_1		31.8		22.5	21.3			38.8		38.8	33.6	33.1
Delay Factor k		0.50		0.22	0.24			0.36		0.35	0.11	0.11
Incremental Delay d_2		46.7		7.8	1.5			7.2		42.8	0.2	0.1
PF Factor		1.000		1.000	1.000			1.000		1.000	1.000	1.000
Control Delay		78.5		30.2	22.8			46.1		81.6	33.7	33.1
Lane Group LOS		E		C	C			D		F	C	C
Approach Delay	78.5			23.7			46.1			62.2		
Approach LOS	E			C			D			E		
Intersection Delay	54.9			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	CENTRE/RAMP & WASHINGTON PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	12/6/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	0	2	0				0	3	0	0	2	1
Lane Group		LTR						LTR		DefL	T	R
Volume (vph)	8	352	3				30	464	36	60	32	9
% Heavy Vehicles	4	4	4				1	1	1	5	5	5
PHF	0.67	0.67	0.67				0.90	0.90	0.90	0.87	0.87	0.87
Pretimed/Actuated (P/A)	A	A	A				A	A	A	A	A	A
Startup Lost Time		2.0						2.0		2.0	2.0	2.0
Extension of Effective Green		2.0						2.0		2.0	2.0	2.0
Arrival Type		3						3		3	3	3
Unit Extension		3.0						3.0		3.0	3.0	3.0
Ped/Bike/RTOR Volume	63	0	0				135	0	0	47	0	0
Lane Width		12.0						12.0		12.0	12.0	12.0
Parking/Grade/Parking	N	6	N				N	6	Y	N	-3	N
Parking/Hour									10			
Bus Stops/Hour		0						0		0	0	0
Minimum Pedestrian Time		24.2						22.2			3.6	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 45.0	G = 20.0	G =	G =	G = 19.0	G =	G =	G =
	Y = 5.5	Y = 5	Y =	Y =	Y = 5.5	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		
Adjusted Flow Rate		541						589		69	37	10
Lane Group Capacity		606						720		85	314	234
v/c Ratio		0.89						0.82		0.81	0.12	0.04
Green Ratio		0.20						0.19		0.19	0.19	0.19
Uniform Delay d_1		39.0						38.8		38.8	33.6	33.1
Delay Factor k		0.42						0.36		0.35	0.11	0.11
Incremental Delay d_2		15.6						7.4		42.8	0.2	0.1
PF Factor		1.000						1.000		1.000	1.000	1.000
Control Delay		54.5						46.2		81.6	33.7	33.1
Lane Group LOS		D						D		F	C	C
Approach Delay	54.5						46.2			62.2		
Approach LOS	D						D			E		
Intersection Delay	51.3			Intersection LOS						D		

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SHORT REPORT

General Information		Site Information	
Analyst	N. Karsko	Intersection	CENTRE AVE & LEMIEUX PL
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	SATURDAY CASINO PEAK HOUR	Analysis Year	2008 COMBINED CONDITION

Volume and Timing Input

	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes	1	2			2	0				1		1
Lane Group	L	T			TR					L		R
Volume (vph)	114	1504			548	634				23		63
% Heavy Vehicles	4	4			4	4				0		0
PHF	0.94	0.94			0.83	0.83				0.90		0.90
Pretimed/Actuated (P/A)	P	P			P	P				P		P
Startup Lost Time	2.0	2.0			2.0					2.0		2.0
Extension of Effective Green	2.0	2.0			2.0					2.0		2.0
Arrival Type	3	3			3					3		3
Unit Extension	3.0	3.0			3.0					3.0		3.0
Ped/Bike/RTOR Volume	0	0		162	0	0				25	0	0
Lane Width	12.0	11.0			11.0					12.0		12.0
Parking/Grade/Parking	N	4	Y	N	-2	Y				N	-5	Y
Parking/Hour			20			20						20
Bus Stops/Hour	0	0			0					0		0
Minimum Pedestrian Time		3.2			14.3						21.4	

Phasing	EB Only	EW Perm	03	04	SB Only	06	07	08
Timing	G = 7.0	G = 54.5	G =	G =	G = 14.0	G =	G =	G =
	Y = 3.5	Y = 5.5	Y =	Y =	Y = 5.5	Y =	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate	121	1600			1424					26		70
Lane Group Capacity	226	1928			1422					259		334
v/c Ratio	0.54	0.83			1.00					0.10		0.21
Green Ratio	0.72	0.72			0.61					0.16		0.29
Uniform Delay d_1	9.7	8.7			17.8					32.6		23.9
Delay Factor k	0.50	0.50			0.50					0.50		0.50
Incremental Delay d_2	8.8	4.3			24.2					0.8		1.4
PF Factor	1.000	1.000			1.000					1.000		1.000
Control Delay	18.5	13.0			42.0					33.4		25.3
Lane Group LOS	B	B			D					C		C
Approach Delay	13.4			42.0						27.5		
Approach LOS	B			D						C		
Intersection Delay	26.3			Intersection LOS						C		

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TWO-WAY STOP CONTROL SUMMARY

General Information

Analyst	CKR
Agency/Co.	TRANS ASSOCIATES
Date Performed	12/9/2005
Analysis Time Period	SATURDAY CASINO PEAK HOUR

Site Information

Intersection	CENTRE AVE & LOGAN ST
Jurisdiction	CITY OF PITTSBURGH
Analysis Year	2008 COMBINED CONDITIONS

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: CENTRE AVENUE | North/South Street: LOGAN 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)		1531			1159	20
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	1701	0	0	1287	22
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						23
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	25
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								25
C (m) (veh/h)								410
v/c								0.06
95% queue length								0.19
Control Delay (s/veh)								14.3
LOS								B
Approach Delay (s/veh)	--	--				14.3		
Approach LOS	--	--				B		

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TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	CKR	Intersection	CENTRE AVE & FULTON ST
Agency/Co.	TRANS ASSOCIATES	Jurisdiction	CITY OF PITTSBURGH
Date Performed	12/9/2005	Analysis Year	2008 COMBINED CONDITIONS
Analysis Time Period	SATURDAY CASINO PEAK HOUR		

Project Description: AYHPL00-05380 PITTSBURGH PENGUINS ARENA REDEVELOPMENT

East/West Street: CENTRE AVENUE | North/South Street: FULTON 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)		756			209	40
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	840	0	0	232	44
Percent Heavy Vehicles	0	--	--	2	--	--
Median Type	Undivided					
RT Channelized			0			0
Lanes	0	2	0	0	2	0
Configuration		T			T	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)						12
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Hourly Flow Rate, HFR (veh/h)	0	0	0	0	0	13
Percent Heavy Vehicles	2	0	2	0	0	2
Percent Grade (%)	0			-6		
Flared Approach		N			N	
Storage		0			0	
RT Channelized			0			0
Lanes	0	0	0	0	0	1
Configuration						R

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								R
v (veh/h)								13
C (m) (veh/h)								885
v/c								0.01
95% queue length								0.04
Control Delay (s/veh)								9.1
LOS								A
Approach Delay (s/veh)	--	--				9.1		
Approach LOS	--	--				A		

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