APPENDIX D

Levels of Service (LOS) Definitions

LEVEL OF SERVICE

Intersection levels of service (LOS) were determined through implementation of the methodology presented in the 2000 Edition of the *Highway Capacity Manual*, published by the Transportation Research Board.

Signalized Intersections

An explanation of level of service at signalized intersections is as follows:

"Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. Delay is a complex measure and dependents upon a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

LOS A describes operations with very low control delay, up to 10 seconds per vehicle. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

LOS B describes operations with control delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

LOS C describes operations with control delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

LOS D describes operations with control delay greater than 35 and up to 55 seconds per vehicle. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

LOS E describes operations with control delay greater than 55 and up to 80 seconds per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

LOS F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also be major contribute significantly to high delay levels."

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

(Adapted from figure 16-2, HCS 2000)

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤10
B	>10 and ≤20
C	>20 and ≤35
D	>35 and ≤55
E	>55 and ≤80
F	>80

Unsignalized Intersections

Level of service for unsignalized intersections is determined by the computed or measured average control delay, and is defined for each minor movement. Level of service is not defined for the intersection as a whole. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during conditions with ideal geometrics and in the absence of incidents, control and traffic.

The LOS criteria for unsignalized intersections are somewhat different from the criteria used for signalized intersections primarily because different transportation facilities create different driver perceptions. The expectation is that a signalized intersection is designed to carry higher traffic volumes and experience greater delay than an unsignalized intersection.

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

(Adapted from figures 17-2 & 17-22, HCS 2000)

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	$\leq$10
B	>10 and $\leq$15
C	>15 and $\leq$25
D	>25 and $\leq$35
E	>35 and $\leq$50
F	>50

Two-Lane Highways Level of Service

Two-lane highway levels of service (LOS) were determined through implementation of the methodology presented in the 2000 Edition of the *Highway Capacity Manual*, published by the Transportation Research Board.

Two-Lane Highways are categorized into two classes:

Class I – These are two lane highways on which most motorists expect to travel at relatively high speeds. Two-lane highways that are major intercity routes, primary arterials connecting major traffic generators, daily commuter routes, or primary links in state or national highway networks generally are assigned to Class I. Class I facilities most often serve long-distance trips or provide connecting links between facilities that service long-distance trips.

Class II – These are two lane highways on which motorists do not necessarily expect to travel at high speeds. Two-lane highways that function as access routes to Class I facilities, serve as scenic or recreational routes that are not primarily arterials, or pass through rugged terrain generally are assigned to Class II. Class II facilities most often serve relatively short trips, the beginning and ending portions of longer trips, or trips for which sightseeing plays a significant role.

The primary measures of service quality for Class I two-lane highways are percent time-spent-following and average travel speed. For Class II two-lane highways, service quality is based only on percent time-spent-following.

LOS A describes the highest quality of traffic service, when motorists are able to travel at their desired speed. Without strict enforcement, this highest quality would result in average speeds of 55 mph or more on Class I highways. The passing frequency required to maintain these speeds has not reached a demanding level, so that passing demand is well below passing capacity, and platoons of three or more vehicles are rare. Drivers are delayed no more than 35 percent of their travel time by slow-moving vehicles. A maximum flow rate of 490 pc/h total in both directions may be achieved with base conditions. On Class II highways, speeds may fall below 55 mph, but motorists will not be delayed in platoons for more than 40 percent of their travel time.

LOS B characterizes traffic flow with speeds of 50 mph or slightly higher on level terrain Class I highways. The demand for passing to maintain desired speeds becomes significant and approximates the passing capacity at the lower boundary of LOS B. Drivers are delayed in platoons up to 50 percent of the time. Service flow rates of 780 pc/h total in both directions can be achieved under base conditions. Above this flow rate, platoons will increase dramatically. On Class II highways, speeds may fall below 50 mph, but motorists will not be delayed in platoons for more than 55 percent of their travel time.

LOS C describes further increases in flow resulting in noticeable increases in platoon formation, platoon size, and frequency of passing impediments. The average speed still exceeds 45 mph on level terrain Class I highways, even though unrestricted passing demand exceeds passing capacity. At higher volumes the chaining of platoons and significant reductions in passing capacity occur. Although traffic flow is stable, it is susceptible to congestion due to turning traffic and slow moving vehicles. Percent time following may exceed 65 percent. A service flow rate of up to 1,190 pc/h total in both directions can be accommodated under base

conditions. On Class II highways, speeds may fall below 45 mph, but motorists will not be delayed in platoons for more than 70 percent of their travel time.

LOS D describes unstable traffic flow. The two opposing traffic streams begin to operate separately at higher volumes, as passing becomes extremely difficult. Passing demand is high, but passing capacity approaches zero. Mean platoon sizes of 5 to 10 vehicles are common, although speeds of 40 mph can still be maintained under base conditions on Class I highways. The proportion of no-passing zones along the roadway section usually has little influence on passing. Turning vehicles and roadside distractions cause major shock waves in the traffic stream. Maximum service flow rates of 1,830 pc/h total in both directions can be maintained under base conditions. On Class II highways, speeds may fall below 40 mph, but in no case will motorists will not be delayed in platoons for more than 85 percent of their travel time.

At **LOS E**, traffic flow conditions have a percent time-spent-following greater than 80 percent on Class I highways and greater than 85 percent on Class II. Even under base conditions, speeds may drop below 40 mph. Average speeds on highways with less than base conditions will be slower, even down to 25 mph on sustained upgrades. Passing is virtually impossible at LOS E, and platooning becomes intense, as slower vehicles or other interruptions are encountered. The highest volume attainable under LOS E defines capacity of the highway, generally 3,200 pc/h total in both directions. Operating conditions at capacity are unstable and difficult to predict. Traffic operations seldom reach near capacity on rural highways, primarily because of a lack of demand.

LOS F represents heavily congested flow with traffic demand exceeding capacity. Volumes are lower than capacity and speeds are highly variable.

Urban Street Levels of Service

LOS A describes primarily free-flow operations at average travel speeds, usually about 90 percent of the Free Flow Speed (FFS) for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.

LOS B describes reasonably unimpeded operations at average travel speeds, usually about 70 percent of the FFS for the street class. The ability to maneuver within the traffic stream is only slightly restricted, and control delays at signalized intersections are not significant.

LOS C describes stable operations; however; ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the FFS for the street class.

LOS D borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal timings, high volumes, or a combination of these factors. Average travel speeds are about 40 percent FFS.

LOS E is characterized by significant delays and average travel speeds of 33 percent or less of the FFS. Such operations are caused by a combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.

LOS F is characterized by urban street flow at extremely low speeds, typically one-third to one-fourth of the FFS. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing.

APPENDIX E

Highway Capacity Software (HCS) Analysis
2005 Existing Condition

A.M. 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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)		201	254		294		209					
% Heavy Vehicles		21	21		16		14					
PHF		0.93	0.93		0.94		0.82					
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	200	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		18.3			3.2			3.2				

Phasing	Thru & RT	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 20.0	G = 28.0	G =	G =	G = 29.0	G =	G =	G =
	Y = 3	Y = 5	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		489			313		255					
Lane Group Capacity		1212			2200		464					
v/c Ratio		0.40			0.14		0.55					
Green Ratio		0.57			0.57		0.32					
Uniform Delay d_1		11.0			9.2		25.1					
Delay Factor k		0.50			0.50		0.50					
Incremental Delay d_2		1.0			0.1		4.6					
PF Factor		1.000			1.000		1.000					
Control Delay		12.0			9.3		29.7					
Lane Group LOS		B			A		C					
Approach Delay	12.0			9.3			29.7					
Approach LOS	B			A			C					
Intersection Delay	15.5			Intersection LOS			B					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)		200	1	32	221		73		154			
% Heavy Vehicles		36	36	30	30		3		3			
PHF		0.91	0.91	0.79	0.79		0.86		0.86			
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	200	0	0	0	0		200	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		18.0			3.2			18.5				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 10.0	G = 42.0	G =	G =	G = 25.0	G =	G =	G =
	Y = 3	Y = 5	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		221			321		85		179			
Lane Group Capacity		1073			1850		428		321			
v/c Ratio		0.21			0.17		0.20		0.56			
Green Ratio		0.47			0.61		0.28		0.28			
Uniform Delay d_1		14.2			7.6		24.8		27.8			
Delay Factor k		0.50			0.50		0.50		0.50			
Incremental Delay d_2		0.4			0.2		1.0		6.8			
PF Factor		1.000			1.000		1.000		1.000			
Control Delay		14.6			7.8		25.9		34.6			
Lane Group LOS		B			A		C		C			
Approach Delay	14.6			7.8			31.8					
Approach LOS	B			A			C					
Intersection Delay	17.5			Intersection LOS			B					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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	249	1	1	209	31		192	77	8	25	1
% Heavy Vehicles	5	5	5	10	10	10		2	2	94	94	94
PHF	0.89	0.89	0.89	0.89	0.89	0.89		0.90	0.90	0.83	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	
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		285			271			299			41	
Lane Group Capacity		1180			599			1215			338	
v/c Ratio		0.24			0.45			0.25			0.12	
Green Ratio		0.41			0.41			0.43			0.43	
Uniform Delay d_1		13.3			14.8			12.8			12.1	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.5			2.5			0.5			0.7	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		13.8			17.2			13.3			12.8	
Lane Group LOS		B			B			B			B	
Approach Delay	13.8			17.2			13.3			12.8		
Approach LOS	B			B			B			B		
Intersection Delay	14.6			Intersection LOS						B		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	177	53	38	32	72	5		621	53		575	156
% Heavy Vehicles	29	29	29	85	85	85		10	10		9	9
PHF	0.94	0.94	0.94	0.63	0.63	0.63		0.84	0.84		0.88	0.88
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	200	0	0	200	0	0	200	0	0	200	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		21.7			21.7			27.5			26.0	

Phasing	WB Only	WB Only	EB Only	04	Thru & RT	Thru & RT	07	08
Timing	G = 26.0	G = 19.0	G = 20.0	G =	G = 49.0	G = 13.0	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	188	96		51	122			802			830	
Lane Group Capacity	307	156		243	298			1756			1236	
v/c Ratio	0.61	0.62		0.21	0.41			0.46			0.67	
Green Ratio	0.13	0.13		0.33	0.33			0.44			0.44	
Uniform Delay d_1	62.8	62.9		37.2	40.0			30.2			34.2	
Delay Factor k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental Delay d_2	8.8	16.8		2.0	4.1			0.9			2.9	
PF Factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control Delay	71.7	79.7		39.2	44.1			31.1			37.2	
Lane Group LOS	E	E		D	D			C			D	
Approach Delay	74.4			42.7			31.1			37.2		
Approach LOS	E			D			C			D		
Intersection Delay	40.3			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	CKR	Intersection	LIBERTY AVE & ELEVENTH ST
Agency or Co.	TRANS ASSOCIATES	Area Type	CBD or Similar
Date Performed	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	117		113				217	586			618	61
% Heavy Vehicles	9		9				5	5			4	4
PHF	0.87		0.87				0.89	0.89			0.88	0.88
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 = 20.0	G = 49.0	G = 13.0	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	134		130				244	658			771	
Lane Group Capacity	246		202				324	1894			984	
v/c Ratio	0.54		0.64				0.75	0.35			0.78	
Green Ratio	0.17		0.08				0.22	0.61			0.32	
Uniform Delay d_1	58.1		67.8				56.2	14.9			47.2	
Delay Factor k	0.50		0.50				0.50	0.50			0.50	
Incremental Delay d_2	8.4		14.7				14.9	0.5			6.2	
PF Factor	1.000		1.000				1.000	1.000			1.000	
Control Delay	66.5		82.5				71.1	15.4			53.4	
Lane Group LOS	E		F				E	B			D	
Approach Delay	74.4						30.5			53.4		
Approach LOS	E						C			D		
Intersection Delay	45.6			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	13	290	60	171	451	350	136	417	109	205	408	65
% Heavy Vehicles	5	5	5	1	1	1	14	14	14	8	8	8
PHF	0.91	0.91	0.91	0.95	0.95	0.95	0.86	0.86	0.86	0.88	0.88	0.88
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	200	0	0	200	0	0	200	0	0	200	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		18.3			18.5			19.5			18.3	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 27.0	G =	G =	G =	G = 16.0	G = 34.0	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		399			655	368	158	612		233	538	
Lane Group Capacity		762			622	714	422	982		416	1044	
v/c Ratio		0.52			1.05	0.52	0.37	0.62		0.56	0.52	
Green Ratio		0.30			0.30	0.53	0.59	0.38		0.59	0.38	
Uniform Delay d_1		26.2			31.5	13.5	9.4	22.8		10.5	21.6	
Delay Factor k		0.50			0.50	0.50	0.50	0.50		0.50	0.50	
Incremental Delay d_2		2.6			50.8	2.6	2.5	3.0		5.4	1.8	
PF Factor		1.000			1.000	1.000	1.000	1.000		1.000	1.000	
Control Delay		28.7			82.3	16.2	12.0	25.8		15.8	23.5	
Lane Group LOS		C			F	B	B	C		B	C	
Approach Delay	28.7			58.5			22.9			21.1		
Approach LOS	C			E			C			C		
Intersection Delay	35.5			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	38	169	17	102	447	208	93	416	125	106	520	13
% Heavy Vehicles	14	14	14	2	2	2	10	10	10	6	6	6
PHF	0.90	0.90	0.90	0.94	0.94	0.94	0.86	0.86	0.86	0.93	0.93	0.93
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	155	0	0	195	0	0	328	0	0	285	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			18.3			17.9			14.1	

Phasing	EB Only	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 3.0	G = 34.0	G =	G =	G = 9.0	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		249			806		108	629		114	573	
Lane Group Capacity		388			986		269	776		258	874	
v/c Ratio		0.64			0.82		0.40	0.81		0.44	0.66	
Green Ratio		0.44			0.38		0.44	0.31		0.44	0.31	
Uniform Delay d_1		19.4			25.2		16.1	28.6		16.4	26.8	
Delay Factor k		0.50			0.50		0.50	0.50		0.50	0.50	
Incremental Delay d_2		7.9			7.5		4.4	9.0		5.4	3.8	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		27.4			32.7		20.5	37.5		21.8	30.7	
Lane Group LOS		C			C		C	D		C	C	
Approach Delay	27.4			32.7			35.0			29.2		
Approach LOS	C			C			D			C		
Intersection Delay	31.9			Intersection LOS						C		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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			LT	
Volume (vph)	135	220	45	23	425	84	51	126	75	171	392	
% Heavy Vehicles	2	2	2	3	3	3	2	2	2	1	1	
PHF	0.93	0.93	0.93	0.84	0.84	0.84	0.88	0.88	0.88	0.89	0.89	
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	
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	3	200	0	9	200	0	8	200	0	
Lane Width	12.0	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			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 = 37.0	G =	G =	G =	G = 22.0	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	145	282			622			277			632	
Lane Group Capacity	326	1524			1489			646			722	
v/c Ratio	0.44	0.19			0.42			0.43			0.88	
Green Ratio	0.53	0.53			0.53			0.31			0.31	
Uniform Delay d_1	10.2	8.6			10.0			19.0			22.7	
Delay Factor k	0.50	0.50			0.50			0.50			0.50	
Incremental Delay d_2	4.3	0.3			0.9			2.1			14.0	
PF Factor	1.000	1.000			1.000			1.000			1.000	
Control Delay	14.5	8.9			10.8			21.1			36.7	
Lane Group LOS	B	A			B			C			D	
Approach Delay	10.8			10.8			21.1			36.7		
Approach LOS	B			B			C			D		
Intersection Delay	20.6			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	CKR	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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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	0
Lane Group	L	LTR	R					T	R	L	LTR	
Volume (vph)	495	196	629					442	63	153	114	140
% Heavy Vehicles	0	0	0					0	0	0	0	0
PHF	0.97	0.97	0.97					0.92	0.92	0.90	0.90	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	
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	150	0	0				0	0	6	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	2	2	2					2	2	2	2	
Minimum Pedestrian Time		15.5						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 36.0	G =	G =	G =	G = 21.0	G = 18.0	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	485	421	454					480	62	85	368	
Lane Group Capacity	608	542	457					760	338	354	544	
v/c Ratio	0.80	0.78	0.99					0.63	0.18	0.24	0.68	
Green Ratio	0.40	0.40	0.40					0.23	0.23	0.20	0.20	
Uniform Delay d_1	23.8	23.5	26.9					31.0	27.6	30.3	33.3	
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	
Incremental Delay d_2	10.5	10.5	40.5					4.0	1.2	1.6	6.6	
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	
Control Delay	34.3	34.0	67.4					35.0	28.8	31.9	39.9	
Lane Group LOS	C	C	E					C	C	C	D	
Approach Delay	45.2						34.3			38.4		
Approach LOS	D						C			D		
Intersection Delay	41.4			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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	0	1	1
Lane Group		LTR			LT			LR			LT	R
Volume (vph)	36	204	85	12	91		2		3	104	272	307
% Heavy Vehicles	2	2	2	3	3		0		0	2	2	2
PHF	0.91	0.91	0.91	0.80	0.80		0.63		0.63	0.81	0.81	0.81
Pretimed/Actuated (P/A)	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	50	0	9	50	0		50	0	0	0	0	31
Lane Width		12.0			12.0			12.0			12.0	12.0
Parking/Grade/Parking	N	10	N	N	-6	N	N	2	Y	N	2	N
Parking/Hour									10			
Bus Stops/Hour		0			0			0			0	0
Minimum Pedestrian Time		14.9			15.9			12.2			3.2	

Phasing	EB Only	WB Only	03	04	NB Only	SB Only	07	08
Timing	G = 12.0	G = 7.0	G =	G =	G = 4.0	G = 20.0	G =	G =
	Y = 5.5	Y = 5.5	Y =	Y =	Y = 5.5	Y = 5.5	Y =	Y =
Duration of Analysis (hrs) = 0.25						Cycle Length C = 65.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB	
Adjusted Flow Rate		348			129			8		464	341
Lane Group Capacity		519			343			67		504	434
v/c Ratio		0.67			0.38			0.12		0.92	0.79
Green Ratio		0.18			0.11			0.06		0.31	0.31
Uniform Delay d_1		24.7			27.0			28.8		21.7	20.5
Delay Factor k		0.24			0.11			0.11		0.44	0.33
Incremental Delay d_2		3.4			0.7			0.8		22.3	9.2
PF Factor		1.000			1.000			1.000		1.000	1.000
Control Delay		28.0			27.7			29.6		44.1	29.8
Lane Group LOS		C			C			C		D	C
Approach Delay	28.0			27.7			29.6			38.0	
Approach LOS	C			C			C			D	
Intersection Delay	34.2			Intersection LOS						C	

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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	72	255	24	41	4	68	3	30	1	1	1
% Heavy Vehicles	6	6	6	28	28	28	5	5	5	0	0	0
PHF	0.90	0.90	0.90	0.66	0.66	0.66	0.94	0.94	0.94	0.50	0.50	0.50
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	26	25	0	0	25	0	3	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		335			104			104			6	
Lane Group Capacity		453			299			656			647	
v/c Ratio		0.74			0.35			0.16			0.01	
Green Ratio		0.30			0.30			0.50			0.50	
Uniform Delay d_1		15.7			13.7			6.8			6.3	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		10.4			3.2			0.5			0.0	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		26.1			16.9			7.3			6.3	
Lane Group LOS		C			B			A			A	
Approach Delay	26.1			16.9			7.3			6.3		
Approach LOS	C			B			A			A		
Intersection Delay	20.6			Intersection LOS			C					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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	0	3	0	0	2	1
Lane Group		LTR			LT	R		LTR			LT	R
Volume (vph)	22	233	255	50	277	70	38	360	62	127	522	5
% Heavy Vehicles	2	2	2	6	6	6	5	5	5	3	3	3
PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.92	0.92	0.92	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	117	0	0	288	0	0	17	0	0	9	0	0
Lane Width		13.0			10.0	13.0		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
Minimum Pedestrian Time		24.5			25.6			21.3			3.3	

Phasing	EW Perm	Peds Only	03	04	NS Perm	06	07	08
Timing	G = 26.0	G = 20.0	G =	G =	G = 28.0	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 = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		560			352	75		499			690	5
Lane Group Capacity		764			627	296		999			717	442
v/c Ratio		0.73			0.56	0.25		0.50			0.96	0.01
Green Ratio		0.29			0.29	0.29		0.31			0.31	0.31
Uniform Delay d_1		28.9			27.2	24.6		25.3			30.5	21.4
Delay Factor k		0.50			0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2		6.2			3.6	2.1		1.8			25.6	0.0
PF Factor		1.000			1.000	1.000		1.000			1.000	1.000
Control Delay		35.0			30.8	26.6		27.1			56.1	21.5
Lane Group LOS		D			C	C		C			E	C
Approach Delay	35.0			30.0			27.1			55.8		
Approach LOS	D			C			C			E		
Intersection Delay	38.8			Intersection LOS			D					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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			LT	R
Volume (vph)	53	85	110				38	360	62	127	522	5
% Heavy Vehicles	0	0	0				5	5	5	3	3	3
PHF	0.80	0.80	0.80				0.92	0.92	0.92	0.94	0.94	0.94
Pretimed/Actuated (P/A)	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	117	0	0				17	0	0	9	0	0
Lane Width		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
Minimum Pedestrian Time		24.5						21.3			3.3	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 26.0	G = 20.0	G =	G =	G = 28.0	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 = 90.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		309						499			690	5
Lane Group Capacity		603						999			717	439
v/c Ratio		0.51						0.50			0.96	0.01
Green Ratio		0.22						0.31			0.31	0.31
Uniform Delay d_1		30.7						25.3			30.5	21.4
Delay Factor k		0.50						0.50			0.50	0.50
Incremental Delay d_2		3.1						1.8			25.6	0.0
PF Factor		1.000						1.000			1.000	1.000
Control Delay		33.8						27.1			56.1	21.5
Lane Group LOS		C						C			E	C
Approach Delay	33.8						27.1			55.8		
Approach LOS	C						C			E		
Intersection Delay	41.7			Intersection LOS			D					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	10	359	14	1	219	7				30	6	151
% Heavy Vehicles	3	3	3	4	4	4				1	1	1
PHF	0.82	0.82	0.82	0.88	0.88	0.88				0.62	0.62	0.62
Pretimed/Actuated (P/A)	P	P	P	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	0	0	1	124	0	1				18	0	0
Lane Width		11.0			11.0						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	
Minimum Pedestrian Time		3.2			13.9						21.3	

Phasing	EW Perm	02	03	04	SB Only	06	07	08
Timing	G = 38.0	G =	G =	G =	G = 21.0	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		466			257						302	
Lane Group Capacity		1375			1415						363	
v/c Ratio		0.34			0.18						0.83	
Green Ratio		0.54			0.54						0.30	
Uniform Delay d_1		9.0			8.1						22.9	
Delay Factor k		0.50			0.50						0.50	
Incremental Delay d_2		0.7			0.3						19.5	
PF Factor		1.000			1.000						1.000	
Control Delay		9.6			8.4						42.4	
Lane Group LOS		A			A						D	
Approach Delay	9.6			8.4						42.4		
Approach LOS	A			A						D		
Intersection Delay	19.0			Intersection LOS						B		

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	26	132	115	31	102	17	192	54	30	35	147	111
% Heavy Vehicles	7	7	7	7	7	7	6	6	6	11	11	11
PHF	0.89	0.89	0.89	0.85	0.85	0.85	0.93	0.93	0.93	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	0	50	0	2	50	0	3	50	0	11
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		22.7			13.5			14.7			14.7	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5	Y =	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		177	129	36	138			293			332	
Lane Group Capacity		721	539	392	526			392			609	
v/c Ratio		0.25	0.24	0.09	0.26			0.75			0.55	
Green Ratio		0.43	0.43	0.43	0.43			0.43			0.43	
Uniform Delay d_1		12.8	12.7	11.9	12.9			16.8			14.9	
Delay Factor k		0.50	0.50	0.50	0.50			0.50			0.50	
Incremental Delay d_2		0.8	1.0	0.5	1.2			12.3			3.5	
PF Factor		1.000	1.000	1.000	1.000			1.000			1.000	
Control Delay		13.6	13.8	12.4	14.1			29.1			18.4	
Lane Group LOS		B	B	B	B			C			B	
Approach Delay	13.7			13.7			29.1			18.4		
Approach LOS	B			B			C			B		
Intersection Delay	19.2			Intersection LOS						B		

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	17	204	6	2	189	11	11	1	4	2	4	30
% Heavy Vehicles	6	6	6	8	8	8	0	0	0	0	0	0
PHF	0.87	0.87	0.87	0.95	0.95	0.95	0.63	0.63	0.63	0.82	0.82	0.82
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	1	50	0	1	50	0	0	50	0	3
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 = 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		260			212			25			40	
Lane Group Capacity		1151			384			258			284	
v/c Ratio		0.23			0.55			0.10			0.14	
Green Ratio		0.64			0.30			0.24			0.24	
Uniform Delay d_1		6.1			23.5			23.8			24.1	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.5			5.6			0.7			1.0	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		6.6			29.1			24.6			25.1	
Lane Group LOS		A			C			C			C	
Approach Delay	6.6			29.1			24.6			25.1		
Approach LOS	A			C			C			C		
Intersection Delay	17.7			Intersection LOS						B		

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)		192	22	47	183		19		35			
% Heavy Vehicles		6	6	8	8		0		0			
PHF		0.87	0.87	0.95	0.95		0.79		0.79			
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	2	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 = 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		244			242			68				
Lane Group Capacity		543			1031			354				
v/c Ratio		0.45			0.23			0.19				
Green Ratio		0.30			0.64			0.24				
Uniform Delay d_1		22.7			6.2			24.4				
Delay Factor k		0.50			0.50			0.50				
Incremental Delay d_2		2.7			0.5			1.2				
PF Factor		1.000			1.000			1.000				
Control Delay		25.3			6.7			25.6				
Lane Group LOS		C			A			C				
Approach Delay	25.3			6.7			25.6					
Approach LOS	C			A			C					
Intersection Delay	17.2			Intersection LOS			B					

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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	1	1			1	2
Lane Group					LTR		L	T			T	R
Volume (vph)				44	644	175	143	376			206	235
% Heavy Vehicles				7	7	7	1	1			0	0
PHF				0.91	0.91	0.91	0.83	0.83			0.83	0.83
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				112	0	18	0	0		9	0	0
Lane Width					11.0		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
Minimum Pedestrian Time					25.9			3.2			15.3	

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					929		172	453			248	283
Lane Group Capacity					1168		337	588			626	963
v/c Ratio					0.80		0.51	0.77			0.40	0.29
Green Ratio					0.49		0.38	0.38			0.38	0.38
Uniform Delay d_1					17.2		19.3	22.0			18.4	17.6
Delay Factor k					0.50		0.50	0.50			0.50	0.50
Incremental Delay d_2					5.6		5.4	9.4			1.9	0.8
PF Factor					1.000		1.000	1.000			1.000	1.000
Control Delay					22.8		24.8	31.4			20.2	18.3
Lane Group LOS					C		C	C			C	B
Approach Delay					22.8			29.6			19.2	
Approach LOS					C			C			B	
Intersection Delay	23.9			Intersection LOS						C		

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)		729	320				186		577			
% Heavy Vehicles		6	6				3		3			
PHF		0.92	0.92				0.86		0.86			
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 = 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		1140						444	443			
Lane Group Capacity		1409						524	875			
v/c Ratio		0.81						0.85	0.51			
Green Ratio		0.51						0.36	0.36			
Uniform Delay d_1		16.2						23.5	19.9			
Delay Factor k		0.50						0.50	0.50			
Incremental Delay d_2		5.1						15.5	2.1			
PF Factor		1.000						1.000	1.000			
Control Delay		21.4						39.0	22.0			
Lane Group LOS		C						D	C			
Approach Delay	21.4						30.5					
Approach LOS	C						C					
Intersection Delay	25.4			Intersection LOS						C		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	474	721	111					20	54	171	82	
% Heavy Vehicles	4	4	4					3	3	1	1	
PHF	0.87	0.87	0.87					0.77	0.77	0.81	0.81	
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	44	0	0				23	0	5	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		14.0						12.3			12.3	

Phasing	EB Only	02	03	04	NS Perm	06	07	08
Timing	G = 51.0	G =	G =	G =	G = 19.0	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	545	957						26	64		312	
Lane Group Capacity	915	1854						379	324		273	
v/c Ratio	0.60	0.52						0.07	0.20		1.14	
Green Ratio	0.64	0.64						0.24	0.24		0.24	
Uniform Delay d_1	8.5	7.8						23.6	24.4		30.5	
Delay Factor k	0.50	0.50						0.50	0.50		0.50	
Incremental Delay d_2	2.9	1.0						0.3	1.4		98.7	
PF Factor	1.000	1.000						1.000	1.000		1.000	
Control Delay	11.3	8.9						24.0	25.8		129.2	
Lane Group LOS	B	A						C	C		F	
Approach Delay	9.8						25.3			129.2		
Approach LOS	A						C			F		
Intersection Delay	30.1			Intersection LOS						C		

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	54	218	318		501	78	32	742	36		458	71
% Heavy Vehicles	2	2	2		4	4	2	2	2		2	2
PHF	0.91	0.91	0.91		0.79	0.79	0.93	0.93	0.93		0.95	0.95
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	4	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 = 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		299	345		733			871			557	
Lane Group Capacity		1000	612		1352			1204			1316	
v/c Ratio		0.30	0.56		0.54			0.72			0.42	
Green Ratio		0.44	0.44		0.44			0.43			0.43	
Uniform Delay d_1		16.0	18.5		18.3			21.0			17.7	
Delay Factor k		0.50	0.50		0.50			0.50			0.50	
Incremental Delay d_2		0.8	3.7		1.6			3.8			1.0	
PF Factor		1.000	1.000		1.000			1.000			1.000	
Control Delay		16.8	22.3		19.9			24.8			18.7	
Lane Group LOS		B	C		B			C			B	
Approach Delay		19.7			19.9			24.8			18.7	
Approach LOS		B			B			C			B	
Intersection Delay		21.1			Intersection LOS						C	

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)				189		37		773	409	92	344	
% Heavy Vehicles				7		7		1	1	0	0	
PHF				0.84		0.84		0.77	0.77	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	0	200	0	41	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 = 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					269			1004	478	102	382	
Lane Group Capacity					462			1569	583	203	1910	
v/c Ratio					0.58			0.64	0.82	0.50	0.20	
Green Ratio					0.31			0.51	0.51	0.58	0.58	
Uniform Delay d_1					26.1			16.0	18.5	11.0	9.1	
Delay Factor k					0.50			0.50	0.50	0.50	0.50	
Incremental Delay d_2					5.3			2.0	12.2	8.6	0.2	
PF Factor					1.000			1.000	1.000	1.000	1.000	
Control Delay					31.4			18.0	30.7	19.6	9.3	
Lane Group LOS					C			B	C	B	A	
Approach Delay				31.4			22.1			11.5		
Approach LOS				C			C			B		
Intersection Delay	20.9			Intersection LOS						C		

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	162				236	370		612			367	166
% Heavy Vehicles	4				3	3		1			6	6
PHF	0.59				0.80	0.80		0.76			0.95	0.95
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 = 32.0	G =	G =	G = 24.0	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	275				378	379		805			386	175
Lane Group Capacity	312				584	497		790			432	367
v/c Ratio	0.88				0.65	0.76		1.02			0.89	0.48
Green Ratio	0.20				0.36	0.36		0.27			0.27	0.27
Uniform Delay d_1	35.0				24.3	25.6		33.0			31.8	27.7
Delay Factor k	0.50				0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2	28.1				5.5	10.6		36.9			23.5	4.4
PF Factor	1.000				1.000	1.000		1.000			1.000	1.000
Control Delay	63.1				29.7	36.2		69.9			55.2	32.1
Lane Group LOS	E				C	D		E			E	C
Approach Delay	63.1			33.0			69.9			48.0		
Approach LOS	E			C			E			D		
Intersection Delay	52.3			Intersection LOS			D					

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	AM PEAK HOUR	Analysis Year	2005 EXISTING 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)	51	183	28		335	389	3	205	47	170	119	18
% Heavy Vehicles	11	11	11		3	3	0	0	0	6	6	6
PHF	0.73	0.73	0.73		0.87	0.87	0.85	0.85	0.85	0.83	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	0	100	0	5	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 = 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		355			385	447		294		205	165	
Lane Group Capacity		389			648	535		628		337	632	
v/c Ratio		0.91			0.59	0.84		0.47		0.61	0.26	
Green Ratio		0.41			0.41	0.41		0.43		0.43	0.43	
Uniform Delay d_1		19.3			15.9	18.4		14.3		15.5	12.9	
Delay Factor k		0.50			0.50	0.50		0.50		0.50	0.50	
Incremental Delay d_2		28.2			4.0	14.3		2.5		7.9	1.0	
PF Factor		1.000			1.000	1.000		1.000		1.000	1.000	
Control Delay		47.5			19.9	32.7		16.8		23.4	13.9	
Lane Group LOS		D			B	C		B		C	B	
Approach Delay	47.5			26.8			16.8			19.1		
Approach LOS	D			C			B			B		
Intersection Delay	27.6			Intersection LOS						C		

P.M. 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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)		304	351		311		247					
% Heavy Vehicles		15	15		18		10					
PHF		0.96	0.96		0.80		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	200	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		18.3			3.2			3.2				

Phasing	Thru & RT	Thru & RT	03	04	NB Only	06	07	08
Timing	G = 18.0	G = 27.0	G =	G =	G = 32.0	G =	G =	G =
	Y = 3	Y = 5	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		683			389		284					
Lane Group Capacity		1202			2035		530					
v/c Ratio		0.57			0.19		0.54					
Green Ratio		0.53			0.53		0.36					
Uniform Delay d_1		14.1			10.9		23.1					
Delay Factor k		0.50			0.50		0.50					
Incremental Delay d_2		2.0			0.2		3.8					
PF Factor		1.000			1.000		1.000					
Control Delay		16.0			11.1		26.9					
Lane Group LOS		B			B		C					
Approach Delay	16.0			11.1			26.9					
Approach LOS	B			B			C					
Intersection Delay	16.9			Intersection LOS			B					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)		304	1	36	212		99		175			
% Heavy Vehicles		28	28	36	36		2		2			
PHF		0.88	0.88	0.86	0.86		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			
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	0	0		200	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		18.0			3.2			18.5				

Phasing	WB Only	EW Perm	03	04	NB Only	06	07	08
Timing	G = 10.0	G = 39.0	G =	G =	G = 28.0	G =	G =	G =
	Y = 3	Y = 5	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		346			289		119		211			
Lane Group Capacity		1059			1591		484		374			
v/c Ratio		0.33			0.18		0.25		0.56			
Green Ratio		0.43			0.58		0.31		0.31			
Uniform Delay d_1		16.8			9.0		23.1		25.9			
Delay Factor k		0.50			0.50		0.50		0.50			
Incremental Delay d_2		0.8			0.3		1.2		6.0			
PF Factor		1.000			1.000		1.000		1.000			
Control Delay		17.7			9.2		24.3		31.9			
Lane Group LOS		B			A		C		C			
Approach Delay	17.7			9.2			29.2					
Approach LOS	B			A			C					
Intersection Delay	19.1			Intersection LOS			B					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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	348	3	1	247	27		243	160	8	28	1
% 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		385			293			511			45	
Lane Group Capacity		1214			610			1186			323	
v/c Ratio		0.32			0.48			0.43			0.14	
Green Ratio		0.41			0.41			0.43			0.43	
Uniform Delay d_1		13.8			15.0			14.0			12.2	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.7			2.7			1.1			0.9	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		14.5			17.7			15.2			13.1	
Lane Group LOS		B			B			B			B	
Approach Delay	14.5			17.7			15.2			13.1		
Approach LOS	B			B			B			B		
Intersection Delay	15.5			Intersection LOS						B		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	490	106	71	73	109	17		726	95		934	134
% Heavy Vehicles	20	20	20	61	61	61		10	10		1	1
PHF	0.75	0.75	0.75	0.77	0.77	0.77		0.79	0.79		0.93	0.93
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	200	0	0	200	0	0	200	0	0	200	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		21.7			21.7			27.5			26.0	

Phasing	WB Only	WB Only	EB Only	04	Thru & RT	Thru & RT	07	08
Timing	G = 21.0	G = 19.0	G = 28.0	G =	G = 41.0	G = 18.0	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	653	236		95	164			1039			1148	
Lane Group Capacity	463	236		256	301			1650			1317	
v/c Ratio	1.41	1.00		0.37	0.54			0.63			0.87	
Green Ratio	0.18	0.18		0.29	0.29			0.42			0.42	
Uniform Delay d_1	62.5	62.5		42.8	45.4			35.1			40.7	
Delay Factor k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental Delay d_2	197.2	58.6		4.1	6.9			1.8			8.1	
PF Factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control Delay	259.7	121.1		46.9	52.3			37.0			48.9	
Lane Group LOS	F	F		D	D			D			D	
Approach Delay	222.9			50.3			37.0			48.9		
Approach LOS	F			D			D			D		
Intersection Delay	91.7			Intersection LOS						F		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	140		364				187	1046			704	88
% Heavy Vehicles	1		1				4	4			1	1
PHF	0.82		0.82				0.87	0.87			0.87	0.87
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 = 21.0	G = 19.0	G =	G =	G = 28.0	G = 41.0	G = 18.0	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	171		444				215	1202			910	
Lane Group Capacity	215		301				456	2015			845	
v/c Ratio	0.80		1.48				0.47	0.60			1.08	
Green Ratio	0.14		0.12				0.30	0.64			0.27	
Uniform Delay d_1	63.9		67.5				43.6	16.0			56.0	
Delay Factor k	0.50		0.50				0.50	0.50			0.50	
Incremental Delay d_2	25.5		231.0				3.5	1.3			53.8	
PF Factor	1.000		1.000				1.000	1.000			1.000	
Control Delay	89.4		298.5				47.1	17.3			109.8	
Lane Group LOS	F		F				D	B			F	
Approach Delay	240.3						21.8			109.8		
Approach LOS	F						C			F		
Intersection Delay	94.7			Intersection LOS						F		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	11	519	78	114	335	226	86	398	164	406	552	54
% Heavy Vehicles	5	5	5	4	4	4	12	12	12	4	4	4
PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.89	0.89	0.89	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	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	200	0	0	200	0	0	200	0	0	200	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		18.3			18.5			19.5			18.3	

Phasing	EW Perm	02	03	04	Excl. Left	NS Perm	07	08
Timing	G = 26.0	G =	G =	G =	G = 23.0	G = 28.0	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		700			516	260	97	631		441	659	
Lane Group Capacity		757			472	791	453	793		489	904	
v/c Ratio		0.92			1.09	0.33	0.21	0.80		0.90	0.73	
Green Ratio		0.29			0.29	0.60	0.60	0.31		0.60	0.31	
Uniform Delay d_1		31.1			32.0	9.0	9.2	28.4		17.4	27.6	
Delay Factor k		0.50			0.50	0.50	0.50	0.50		0.50	0.50	
Incremental Delay d_2		18.8			69.1	1.1	1.1	8.1		22.4	5.1	
PF Factor		1.000			1.000	1.000	1.000	1.000		1.000	1.000	
Control Delay		49.8			101.1	10.1	10.3	36.5		39.8	32.8	
Lane Group LOS		D			F	B	B	D		D	C	
Approach Delay	49.8			70.6			33.0			35.6		
Approach LOS	D			E			C			D		
Intersection Delay	46.3			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	81	280	49	103	286	197	113	370	179	168	532	43
% Heavy Vehicles	7	7	7	4	4	4	12	12	12	4	4	4
PHF	0.83	0.83	0.83	0.94	0.94	0.94	0.95	0.95	0.95	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		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	224	0	0	340	0	0	569	0	0	236	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		18.5			19.2			19.5			13.8	

Phasing	EB Only	EW Perm	03	04	Excl. Left	NS Perm	07	08
Timing	G = 7.0	G = 30.0	G =	G =	G = 7.0	G = 30.0	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		494			624		119	577		224	766	
Lane Group Capacity		324			756		202	768		258	938	
v/c Ratio		1.52			0.83		0.59	0.75		0.87	0.82	
Green Ratio		0.44			0.33		0.44	0.33		0.44	0.33	
Uniform Delay d_1		25.0			27.6		17.3	26.7		27.7	27.5	
Delay Factor k		0.50			0.50		0.50	0.50		0.50	0.50	
Incremental Delay d_2		251.3			10.0		12.0	6.7		30.4	7.8	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		276.3			37.6		29.3	33.4		58.1	35.3	
Lane Group LOS		F			D		C	C		E	D	
Approach Delay	276.3			37.6			32.7			40.4		
Approach LOS	F			D			C			D		
Intersection Delay	79.4			Intersection LOS						E		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	272	314	41	37	329	120	87	282	42	171	260	
% 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		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	200	0	4	200	0	12	200	0	4	200	0	
Lane Width	12.0	11.0			11.0			12.0		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		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 = 37.0	G =	G =	G =	G = 22.0	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	332	428			510			528		197	299	
Lane Group Capacity	380	1562			1408			761		190	517	
v/c Ratio	0.87	0.27			0.36			0.69		1.04	0.58	
Green Ratio	0.53	0.53			0.53			0.31		0.31	0.31	
Uniform Delay d_1	14.5	9.1			9.6			21.0		24.0	20.1	
Delay Factor k	0.50	0.50			0.50			0.50		0.50	0.50	
Incremental Delay d_2	23.3	0.4			0.7			5.2		75.3	4.7	
PF Factor	1.000	1.000			1.000			1.000		1.000	1.000	
Control Delay	37.7	9.5			10.3			26.2		99.3	24.8	
Lane Group LOS	D	A			B			C		F	C	
Approach Delay	21.8			10.3			26.2			54.4		
Approach LOS	C			B			C			D		
Intersection Delay	27.3			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	CKR	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	2005 EXISTING 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	0
Lane Group	L	LTR	R					T	R	L	LTR	
Volume (vph)	882	164	82					1146	257	273	157	132
% Heavy Vehicles	1	1	1					0	0	3	3	3
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	
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	150	0	0				0	0	26	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	0	0	0					0	0	0	0	
Minimum Pedestrian Time		15.5						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 26.0	G =	G =	G =	G = 29.0	G = 20.0	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	536	546	81					1246	251	154	477	
Lane Group Capacity	438	444	300					1054	471	385	597	
v/c Ratio	1.22	1.23	0.27					1.18	0.53	0.40	0.80	
Green Ratio	0.29	0.29	0.29					0.32	0.32	0.22	0.22	
Uniform Delay d_1	32.0	32.0	24.7					30.5	25.0	29.9	33.1	
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	
Incremental Delay d_2	119.6	121.8	2.2					91.9	4.3	3.1	10.7	
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	
Control Delay	151.6	153.8	26.9					122.4	29.2	33.0	43.8	
Lane Group LOS	F	F	C					F	C	C	D	
Approach Delay	143.9						106.7			41.2		
Approach LOS	F						F			D		
Intersection Delay	107.3			Intersection LOS						F		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	487	127	1	19	162	150	68	68	3			
% Heavy Vehicles	0	0	0	0	0	0	0	0	0			
PHF	0.90	0.90	0.90	0.86	0.86	0.86	0.94	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				
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	50	0	0	50	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		14.9			15.9			12.2				

Phasing	EB Only	WB Only	03	04	NB Only	06	07	08
Timing	G = 18.0	G = 10.5	G =	G =	G = 10.0	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 = 55.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		683			384			147				
Lane Group Capacity		973			572			254				
v/c Ratio		0.70			0.67			0.58				
Green Ratio		0.33			0.19			0.18				
Uniform Delay d_1		16.2			20.6			20.6				
Delay Factor k		0.27			0.24			0.17				
Incremental Delay d_2		2.3			3.1			3.3				
PF Factor		1.000			1.000			1.000				
Control Delay		18.4			23.7			23.9				
Lane Group LOS		B			C			C				
Approach Delay	18.4			23.7			23.9					
Approach LOS	B			C			C					
Intersection Delay	20.8			Intersection LOS			C					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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	46	81	27	56	1	222	1	38	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	
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	8	25	0	0	25	0	4	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		136			96			288			20	
Lane Group Capacity		483			395			604			655	
v/c Ratio		0.28			0.24			0.48			0.03	
Green Ratio		0.30			0.30			0.50			0.50	
Uniform Delay d_1		13.4			13.2			8.2			6.3	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		1.5			1.5			2.7			0.1	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		14.8			14.7			10.9			6.4	
Lane Group LOS		B			B			B			A	
Approach Delay	14.8			14.7			10.9			6.4		
Approach LOS	B			B			B			A		
Intersection Delay	12.4			Intersection LOS						B		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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	0	3	0	0	2	1
Lane Group		LTR			LT	R		LTR			LT	R
Volume (vph)	90	169	136	29	329	379	13	904	14	25	138	40
% Heavy Vehicles	2	2	2	2	2	2	1	1	1	9	9	9
PHF	0.77	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	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	138	0	0	291	0	0	12	0	0	57	0	0
Lane Width		13.0			10.0	13.0		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
Minimum Pedestrian Time		24.6			25.7			21.3			3.6	

Phasing	EW Perm	Peds Only	03	04	NS Perm	06	07	08
Timing	G = 26.0	G = 20.0	G =	G =	G = 28.0	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 = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		513			411	436		1108			179	44
Lane Group Capacity		590			773	307		1232			684	398
v/c Ratio		0.87			0.53	1.42		0.90			0.26	0.11
Green Ratio		0.29			0.29	0.29		0.31			0.31	0.31
Uniform Delay d_1		30.4			26.9	32.0		29.7			23.2	22.1
Delay Factor k		0.50			0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2		16.0			2.6	207.2		10.6			0.9	0.6
PF Factor		1.000			1.000	1.000		1.000			1.000	1.000
Control Delay		46.4			29.5	239.2		40.2			24.2	22.7
Lane Group LOS		D			C	F		D			C	C
Approach Delay	46.4			137.4			40.2			23.9		
Approach LOS	D			F			D			C		
Intersection Delay	70.6			Intersection LOS						E		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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			LT	R
Volume (vph)	30	16	16				13	904	14	25	138	40
% 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
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	138	0	0				12	0	0	57	0	0
Lane Width		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
Minimum Pedestrian Time		24.6						21.3			3.6	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 26.0	G = 20.0	G =	G =	G = 28.0	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 = 90.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		77						1108			179	44
Lane Group Capacity		627						1232			684	383
v/c Ratio		0.12						0.90			0.26	0.11
Green Ratio		0.22						0.31			0.31	0.31
Uniform Delay d_1		28.0						29.7			23.2	22.1
Delay Factor k		0.50						0.50			0.50	0.50
Incremental Delay d_2		0.4						10.6			0.9	0.6
PF Factor		1.000						1.000			1.000	1.000
Control Delay		28.4						40.2			24.2	22.8
Lane Group LOS		C						D			C	C
Approach Delay	28.4						40.2			23.9		
Approach LOS	C						D			C		
Intersection Delay	37.0			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	45	260	2	1	654	84				9	1	60
% Heavy Vehicles	3	3	3	1	1	1				0	0	0
PHF	0.86	0.86	0.86	0.85	0.85	0.85				0.64	0.64	0.64
Pretimed/Actuated (P/A)	P	P	P	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	0	0	0	120	0	8				54	0	0
Lane Width		11.0			11.0						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	
Minimum Pedestrian Time		3.2			13.8						21.5	

Phasing	EW Perm	02	03	04	SB Only	06	07	08
Timing	G = 38.0	G =	G =	G =	G = 21.0	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		356			859						110	
Lane Group Capacity		1131			1429						353	
v/c Ratio		0.31			0.60						0.31	
Green Ratio		0.54			0.54						0.30	
Uniform Delay d_1		8.8			10.9						18.9	
Delay Factor k		0.50			0.50						0.50	
Incremental Delay d_2		0.7			1.9						2.3	
PF Factor		1.000			1.000						1.000	
Control Delay		9.6			12.7						21.2	
Lane Group LOS		A			B						C	
Approach Delay	9.6			12.7						21.2		
Approach LOS	A			B						C		
Intersection Delay	12.6			Intersection LOS						B		

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	2005 EXISTING 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)	52	141	211	25	180	37	153	185	75	18	60	62
% 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	0	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		22.7			13.5			14.7			14.7	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5	Y =	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		222	243	28	237			488			158	
Lane Group Capacity		669	549	380	538			570			604	
v/c Ratio		0.33	0.44	0.07	0.44			0.86			0.26	
Green Ratio		0.43	0.43	0.43	0.43			0.43			0.43	
Uniform Delay d_1		13.3	14.1	11.8	14.1			18.1			12.9	
Delay Factor k		0.50	0.50	0.50	0.50			0.50			0.50	
Incremental Delay d_2		1.3	2.6	0.4	2.6			15.2			1.1	
PF Factor		1.000	1.000	1.000	1.000			1.000			1.000	
Control Delay		14.7	16.7	12.2	16.7			33.3			13.9	
Lane Group LOS		B	B	B	B			C			B	
Approach Delay	15.7			16.2			33.3			13.9		
Approach LOS	B			B			C			B		
Intersection Delay	21.8			Intersection LOS						C		

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	2005 EXISTING 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)	50	258	4	2	266	30	4	2	7	4	1	39
% 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 = 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		350			307			18			48	
Lane Group Capacity		1118			388			275			275	
v/c Ratio		0.31			0.79			0.07			0.17	
Green Ratio		0.64			0.30			0.24			0.24	
Uniform Delay d_1		6.6			25.7			23.6			24.3	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.7			15.1			0.5			1.4	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		7.3			40.8			24.1			25.6	
Lane Group LOS		A			D			C			C	
Approach Delay	7.3			40.8			24.1			25.6		
Approach LOS	A			D			C			C		
Intersection Delay	23.2			Intersection LOS						C		

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	2005 EXISTING 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)		229	43	59	250		20		83			
% 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 = 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		301			321			120				
Lane Group Capacity		547			979			342				
v/c Ratio		0.55			0.33			0.35				
Green Ratio		0.30			0.64			0.24				
Uniform Delay d_1		23.5			6.6			25.4				
Delay Factor k		0.50			0.50			0.50				
Incremental Delay d_2		3.9			0.9			2.8				
PF Factor		1.000			1.000			1.000				
Control Delay		27.4			7.5			28.2				
Lane Group LOS		C			A			C				
Approach Delay	27.4			7.5			28.2					
Approach LOS	C			A			C					
Intersection Delay	18.9			Intersection LOS			B					

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	2005 EXISTING 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	1	1			1	2
Lane Group					LTR		L	T			T	R
Volume (vph)				53	767	232	128	389			149	250
% 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
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				193	0	23	0	0		21	0	0
Lane Width					11.0		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
Minimum Pedestrian Time					26.4			3.2			15.3	

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					1197		156	474			186	312
Lane Group Capacity					1165		386	594			614	929
v/c Ratio					1.03		0.40	0.80			0.30	0.34
Green Ratio					0.49		0.38	0.38			0.38	0.38
Uniform Delay d_1					20.5		18.4	22.3			17.6	17.9
Delay Factor k					0.50		0.50	0.50			0.50	0.50
Incremental Delay d_2					33.6		3.1	10.7			1.3	1.0
PF Factor					1.000		1.000	1.000			1.000	1.000
Control Delay					54.1		21.5	33.0			18.9	18.9
Lane Group LOS					D		C	C			B	B
Approach Delay					54.1			30.2			18.9	
Approach LOS					D			C			B	
Intersection Delay	40.1			Intersection LOS						D		

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	2005 EXISTING 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)		561	599				105		428			
% 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 = 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		1289						276	273			
Lane Group Capacity		1374						529	892			
v/c Ratio		0.94						0.52	0.31			
Green Ratio		0.51						0.36	0.36			
Uniform Delay d_1		18.3						20.0	18.3			
Delay Factor k		0.50						0.50	0.50			
Incremental Delay d_2		13.4						3.7	0.9			
PF Factor		1.000						1.000	1.000			
Control Delay		31.7						23.7	19.2			
Lane Group LOS		C						C	B			
Approach Delay	31.7						21.4					
Approach LOS	C						C					
Intersection Delay	28.6			Intersection LOS						C		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	PM PEAK HOUR	Analysis Year	2005 EXISTING 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)	343	576	70					167	132	152	53	
% 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	13	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 = 51.0	G =	G =	G =	G = 19.0	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	390	735						235	168		256	
Lane Group Capacity	915	1855						390	318		127	
v/c Ratio	0.43	0.40						0.60	0.53		2.02	
Green Ratio	0.64	0.64						0.24	0.24		0.24	
Uniform Delay d_1	7.2	7.0						27.1	26.6		30.5	
Delay Factor k	0.50	0.50						0.50	0.50		0.50	
Incremental Delay d_2	1.5	0.6						6.7	6.2		483.7	
PF Factor	1.000	1.000						1.000	1.000		1.000	
Control Delay	8.7	7.7						33.9	32.8		514.2	
Lane Group LOS	A	A						C	C		F	
Approach Delay	8.0						33.4			514.2		
Approach LOS	A						C			F		
Intersection Delay	86.4			Intersection LOS						F		

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	2005 EXISTING 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	719	401		379	78	50	578	159		840	114
% 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	4	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 = 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		793	427		520			960			1048	
Lane Group Capacity		1306	624		1338			922			1346	
v/c Ratio		0.61	0.68		0.39			1.04			0.78	
Green Ratio		0.44	0.44		0.44			0.43			0.43	
Uniform Delay d_1		19.0	20.0		16.8			25.5			21.8	
Delay Factor k		0.50	0.50		0.50			0.50			0.50	
Incremental Delay d_2		2.1	6.0		0.9			40.9			4.5	
PF Factor		1.000	1.000		1.000			1.000			1.000	
Control Delay		21.1	26.0		17.6			66.4			26.3	
Lane Group LOS		C	C		B			E			C	
Approach Delay	22.8			17.6			66.4			26.3		
Approach LOS	C			B			E			C		
Intersection Delay	34.2			Intersection LOS						C		

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	2005 EXISTING 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)				363		58		729	157	79	703	
% 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	16	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 = 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					520			838	162	87	773	
Lane Group Capacity					498			1520	562	239	1854	
v/c Ratio					1.04			0.55	0.29	0.36	0.42	
Green Ratio					0.32			0.50	0.50	0.57	0.57	
Uniform Delay d_1					30.5			15.5	13.1	10.4	11.1	
Delay Factor k					0.50			0.50	0.50	0.50	0.50	
Incremental Delay d_2					52.3			1.4	1.3	4.2	0.7	
PF Factor					1.000			1.000	1.000	1.000	1.000	
Control Delay					82.8			17.0	14.4	14.7	11.8	
Lane Group LOS					F			B	B	B	B	
Approach Delay				82.8			16.6			12.0		
Approach LOS				F			B			B		
Intersection Delay	29.4			Intersection LOS			C					

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	2005 EXISTING 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)	223				350	224		457			572	494
% 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 = 27.0	G = 25.0	G =	G =	G = 22.0	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	251				425	251		564			596	515
Lane Group Capacity	482				474	392		725			416	353
v/c Ratio	0.52				0.90	0.64		0.78			1.43	1.46
Green Ratio	0.30				0.28	0.28		0.24			0.24	0.24
Uniform Delay d_1	26.1				31.3	28.6		31.7			34.0	34.0
Delay Factor k	0.50				0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2	4.0				22.3	7.8		8.0			208.1	221.6
PF Factor	1.000				1.000	1.000		1.000			1.000	1.000
Control Delay	30.1				53.5	36.3		39.8			242.1	255.6
Lane Group LOS	C				D	D		D			F	F
Approach Delay	30.1			47.2			39.8			248.4		
Approach LOS	C			D			D			F		
Intersection Delay	129.8			Intersection LOS						F		

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	2005 EXISTING 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	279	4		368	182	10	161	95	317	102	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	3	100	0	0	100	0	5	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 = 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		361			433	214		304		373	147	
Lane Group Capacity		570			636	524		593		339	635	
v/c Ratio		0.63			0.68	0.41		0.51		1.10	0.23	
Green Ratio		0.41			0.41	0.41		0.43		0.43	0.43	
Uniform Delay d_1		16.3			16.7	14.5		14.6		20.0	12.7	
Delay Factor k		0.50			0.50	0.50		0.50		0.50	0.50	
Incremental Delay d_2		5.3			5.8	2.4		3.1		78.6	0.9	
PF Factor		1.000			1.000	1.000		1.000		1.000	1.000	
Control Delay		21.6			22.5	16.8		17.8		98.6	13.5	
Lane Group LOS		C			C	B		B		F	B	
Approach Delay	21.6			20.6			17.8			74.5		
Approach LOS	C			C			B			E		
Intersection Delay	35.6			Intersection LOS			D					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)		165	340		178		255					
% 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 = 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		543			205		290					
Lane Group Capacity		1244			2144		526					
v/c Ratio		0.44			0.10		0.55					
Green Ratio		0.51			0.51		0.34					
Uniform Delay d_1		10.6			8.7		18.6					
Delay Factor k		0.50			0.50		0.50					
Incremental Delay d_2		1.1			0.1		4.1					
PF Factor		1.000			1.000		1.000					
Control Delay		11.8			8.8		22.8					
Lane Group LOS		B			A		C					
Approach Delay	11.8			8.8			22.8					
Approach LOS	B			A			C					
Intersection Delay	14.2			Intersection LOS			B					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)		166	1	17	109		69		110			
% 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		203			151		78		124			
Lane Group Capacity		1040			1743		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		16.6			
Delay Factor k		0.50			0.50		0.50		0.50			
Incremental Delay d_2		0.4			0.1		0.6		1.4			
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					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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	338	1	2	255	25		150	103	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	368	328	294	26
Lane Group Capacity	1205	645	1206	349
v/c Ratio	0.31	0.51	0.24	0.07
Green Ratio	0.41	0.41	0.43	0.43
Uniform Delay d_1	13.7	15.2	12.8	11.8
Delay Factor k	0.50	0.50	0.50	0.50
Incremental Delay d_2	0.7	2.9	0.5	0.4
PF Factor	1.000	1.000	1.000	1.000
Control Delay	14.4	18.1	13.2	12.2
Lane Group LOS	B	B	B	B
Approach Delay	14.4	18.1	13.2	12.2
Approach LOS	B	B	B	B
Intersection Delay	15.2	Intersection LOS		B

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	154	29	43	37	33	14		449	35		565	70
% 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 = 47.0	G = 14.0	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	214	100		53	67			569			675	
Lane Group Capacity	365	180		379	403			1832			1388	
v/c Ratio	0.59	0.56		0.14	0.17			0.31			0.49	
Green Ratio	0.14	0.14		0.33	0.33			0.43			0.43	
Uniform Delay d_1	61.9	61.6		36.3	36.7			28.6			31.3	
Delay Factor k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental Delay d_2	6.7	11.8		0.8	0.9			0.4			1.2	
PF Factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control Delay	68.7	73.4		37.1	37.6			29.0			32.5	
Lane Group LOS	E	E		D	D			C			C	
Approach Delay	70.2			37.4			29.0			32.5		
Approach LOS	E			D			C			C		
Intersection Delay	38.7			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	97		156				98	514			479	52
% 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 = 47.0	G = 14.0	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	129		208				108	565			681	
Lane Group Capacity	248		219				361	1989			971	
v/c Ratio	0.52		0.95				0.30	0.28			0.70	
Green Ratio	0.17		0.09				0.23	0.61			0.31	
Uniform Delay d_1	57.8		69.2				48.8	14.2			46.8	
Delay Factor k	0.50		0.50				0.50	0.50			0.50	
Incremental Delay d_2	7.6		49.0				2.1	0.4			4.2	
PF Factor	1.000		1.000				1.000	1.000			1.000	
Control Delay	65.4		118.2				51.0	14.6			51.0	
Lane Group LOS	E		F				D	B			D	
Approach Delay	98.0						20.4			51.0		
Approach LOS	F						C			D		
Intersection Delay	48.2			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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	440	36	107	190	192	54	226	181	340	290	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 = 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		534		122	216	218	67	508		362	331	
Lane Group Capacity		823		158	481	739	556	1076		484	1182	
v/c Ratio		0.65		0.77	0.45	0.29	0.12	0.47		0.75	0.28	
Green Ratio		0.30		0.30	0.30	0.52	0.59	0.39		0.59	0.39	
Uniform Delay d_1		27.4		28.7	25.5	12.1	8.2	20.6		11.0	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		3.9		29.9	3.0	1.0	0.4	1.5		10.1	0.6	
PF Factor		1.000		1.000	1.000	1.000	1.000	1.000		1.000	1.000	
Control Delay		31.3		58.6	28.5	13.2	8.6	22.1		21.1	19.5	
Lane Group LOS		C		E	C	B	A	C		C	B	
Approach Delay		31.3			29.1			20.5			20.3	
Approach LOS		C			C			C			C	
Intersection Delay		24.9			Intersection LOS						C	

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	56	335	31	84	189	110	58	295	241	147	258	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 = 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		439			462		63	583		160	310	
Lane Group Capacity		421			824		421	946		296	1025	
v/c Ratio		1.04			0.56		0.15	0.62		0.54	0.30	
Green Ratio		0.42			0.33		0.47	0.36		0.47	0.36	
Uniform Delay d_1		26.0			24.6		13.5	23.9		15.3	20.9	
Delay Factor k		0.50			0.50		0.50	0.50		0.50	0.50	
Incremental Delay d_2		55.4			2.7		0.8	3.0		6.9	0.8	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		81.4			27.3		14.3	26.9		22.2	21.7	
Lane Group LOS		F			C		B	C		C	C	
Approach Delay	81.4			27.3			25.7			21.9		
Approach LOS	F			C			C			C		
Intersection Delay	37.3			Intersection LOS						D		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	246	452	25	15	199	50	27	118	68	172	167	
% 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	5	100	0	7	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 = 37.0	G =	G =	G =	G = 22.0	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	283	545			332			239		207	201	
Lane Group Capacity	469	1607			1481			833		291	517	
v/c Ratio	0.60	0.34			0.22			0.29		0.71	0.39	
Green Ratio	0.53	0.53			0.53			0.31		0.31	0.31	
Uniform Delay d_1	11.4	9.5			8.8			18.1		21.2	18.7	
Delay Factor k	0.50	0.50			0.50			0.50		0.50	0.50	
Incremental Delay d_2	5.7	0.6			0.4			0.9		13.8	2.2	
PF Factor	1.000	1.000			1.000			1.000		1.000	1.000	
Control Delay	17.1	10.1			9.2			19.0		35.0	20.9	
Lane Group LOS	B	B			A			B		C	C	
Approach Delay	12.5			9.2			19.0			28.1		
Approach LOS	B			A			B			C		
Intersection Delay	16.2			Intersection LOS						B		

SHORT REPORT

General Information		Site Information	
Analyst	CKR	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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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	0
Lane Group	L	LTR	R					T	R	L	LTR	
Volume (vph)	497	288	318					641	209	255	175	108
% Heavy Vehicles	2	2	2					0	0	2	2	2
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	
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				0	0	21	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	0	0	0					0	0	0	0	
Minimum Pedestrian Time		15.1						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 21.0	G =	G =	G =	G = 26.0	G = 18.0	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	507	354	325					791	232	134	432	
Lane Group Capacity	394	406	295					1063	475	394	615	
v/c Ratio	1.29	0.87	1.10					0.74	0.49	0.34	0.70	
Green Ratio	0.26	0.26	0.26					0.32	0.32	0.22	0.22	
Uniform Delay d_1	29.5	28.2	29.5					24.0	21.7	26.0	28.5	
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	
Incremental Delay d_2	147.1	21.9	82.5					4.7	3.6	2.3	6.6	
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	
Control Delay	176.6	50.1	112.0					28.8	25.2	28.4	35.1	
Lane Group LOS	F	D	F					C	C	C	D	
Approach Delay	121.1						28.0			33.5		
Approach LOS	F						C			C		
Intersection Delay	68.9			Intersection LOS						E		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	162	305	199	25	104	27	5	1	8			
% Heavy Vehicles	2	2	2	0	0	0	0	0	0			
PHF	0.74	0.74	0.74	0.74	0.74	0.74	0.46	0.46	0.46			
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	20	75	0	0	75	0	1			
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		15.0			16.0			12.3				

Phasing	EB Only	WB Only	03	04	NB Only	06	07	08
Timing	G = 20.0	G = 10.0	G =	G =	G = 8.5	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 = 55.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		873			211			28				
Lane Group Capacity		1014			571			187				
v/c Ratio		0.86			0.37			0.15				
Green Ratio		0.36			0.18			0.15				
Uniform Delay d_1		16.2			19.7			20.1				
Delay Factor k		0.39			0.11			0.11				
Incremental Delay d_2		7.7			0.4			0.4				
PF Factor		1.000			1.000			1.000				
Control Delay		23.9			20.1			20.5				
Lane Group LOS		C			C			C				
Approach Delay	23.9			20.1			20.5					
Approach LOS	C			C			C					
Intersection Delay	23.1			Intersection LOS			C					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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	52	165	17	56	2	102	1	45	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	17	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	219	84	193	19
Lane Group Capacity	459	412	633	638
v/c Ratio	0.48	0.20	0.30	0.03
Green Ratio	0.30	0.30	0.50	0.50
Uniform Delay d_1	14.3	13.0	7.4	6.3
Delay Factor k	0.50	0.50	0.50	0.50
Incremental Delay d_2	3.5	1.1	1.2	0.1
PF Factor	1.000	1.000	1.000	1.000
Control Delay	17.8	14.2	8.6	6.4
Lane Group LOS	B	B	A	A
Approach Delay	17.8	14.2	8.6	6.4
Approach LOS	B	B	A	A
Intersection Delay	13.4	Intersection LOS		B

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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	0	3	0	0	2	1
Lane Group		LTR			LT	R		LTR		DefL	T	R
Volume (vph)	114	363	197	41	120	146	10	527	139	135	183	17
% Heavy Vehicles	0	0	0	5	5	5	1	1	1	2	2	2
PHF	0.95	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)	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	691	0	0	683	0	0	917	0	0	45	0	0
Lane Width		13.0			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
Minimum Pedestrian Time		27.8			27.8			26.7			3.5	

Phasing	EW Perm	Peds Only	03	04	NS Perm	06	07	08
Timing	G = 23.0	G = 17.0	G =	G =	G = 24.0	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 = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		709			181	164		704		144	195	18
Lane Group Capacity		667			553	262		1054		131	511	414
v/c Ratio		1.06			0.33	0.63		0.67		1.10	0.38	0.04
Green Ratio		0.29			0.29	0.29		0.30		0.30	0.30	0.30
Uniform Delay d_1		28.5			22.4	24.8		24.5		28.0	22.1	19.9
Delay Factor k		0.50			0.50	0.50		0.50		0.50	0.50	0.50
Incremental Delay d_2		52.8			1.6	10.8		3.4		107.7	2.2	0.2
PF Factor		1.000			1.000	1.000		1.000		1.000	1.000	1.000
Control Delay		81.3			24.0	35.6		27.9		135.7	24.3	20.1
Lane Group LOS		F			C	D		C		F	C	C
Approach Delay		81.3			29.5			27.9			69.0	
Approach LOS		F			C			C			E	
Intersection Delay		53.0			Intersection LOS						D	

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	63	175	105				10	527	139	135	183	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)	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	691	0	0				917	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		27.8						26.7			3.5	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 23.0	G = 17.0	G =	G =	G = 24.0	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 = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		483						704		144	195	18
Lane Group Capacity		550						1054		131	511	401
v/c Ratio		0.88						0.67		1.10	0.38	0.04
Green Ratio		0.21						0.30		0.30	0.30	0.30
Uniform Delay d_1		30.5						24.5		28.0	22.1	19.9
Delay Factor k		0.50						0.50		0.50	0.50	0.50
Incremental Delay d_2		17.8						3.4		107.7	2.2	0.2
PF Factor		1.000						1.000		1.000	1.000	1.000
Control Delay		48.3						27.9		135.7	24.3	20.1
Lane Group LOS		D						C		F	C	C
Approach Delay	48.3						27.9			69.0		
Approach LOS	D						C			E		
Intersection Delay	43.8			Intersection LOS			D					

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	10	589	157	21	348	1				3	1	9
% Heavy Vehicles	2	2	2	4	4	4				17	17	17
PHF	0.83	0.83	0.83	0.75	0.75	0.75				0.75	0.75	0.75
Pretimed/Actuated (P/A)	P	P	P	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	0	0	16	47	0	0				1414	0	0
Lane Width		11.0			11.0						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	
Minimum Pedestrian Time		3.2			13.4						28.6	

Phasing	EW Perm	02	03	04	SB Only	06	07	08
Timing	G = 38.0	G =	G =	G =	G = 21.0	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		892			493						17	
Lane Group Capacity		1359			1314						203	
v/c Ratio		0.66			0.38						0.08	
Green Ratio		0.54			0.54						0.30	
Uniform Delay d_1		11.4			9.2						17.6	
Delay Factor k		0.50			0.50						0.50	
Incremental Delay d_2		2.5			0.8						0.8	
PF Factor		1.000			1.000						1.000	
Control Delay		13.9			10.0						18.4	
Lane Group LOS		B			B						B	
Approach Delay	13.9			10.0						18.4		
Approach LOS	B			B						B		
Intersection Delay	12.6			Intersection LOS						B		

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	66	93	108	25	105	24	244	87	50	15	68	134
% 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	0	50	0	2	50	0	5	50	0	13
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		22.7			13.5			14.7			14.7	

Phasing	EW Perm	02	03	04	NS Perm	06	07	08
Timing	G = 30.0	G =	G =	G =	G = 30.0	G =	G =	G =
	Y = 5	Y =	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		178	121	28	144			448			217	
Lane Group Capacity		650	560	399	531			492			650	
v/c Ratio		0.27	0.22	0.07	0.27			0.91			0.33	
Green Ratio		0.43	0.43	0.43	0.43			0.43			0.43	
Uniform Delay d_1		12.9	12.6	11.8	12.9			18.7			13.3	
Delay Factor k		0.50	0.50	0.50	0.50			0.50			0.50	
Incremental Delay d_2		1.0	0.9	0.3	1.3			23.5			1.4	
PF Factor		1.000	1.000	1.000	1.000			1.000			1.000	
Control Delay		14.0	13.5	12.1	14.2			42.3			14.7	
Lane Group LOS		B	B	B	B			D			B	
Approach Delay		13.8			13.9			42.3			14.7	
Approach LOS		B			B			D			B	
Intersection Delay		25.2			Intersection LOS						C	

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	41	185	5	2	214	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 = 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		325			264			14			41	
Lane Group Capacity		1104			380			280			283	
v/c Ratio		0.29			0.69			0.05			0.14	
Green Ratio		0.64			0.30			0.24			0.24	
Uniform Delay d_1		6.5			24.8			23.5			24.1	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.7			10.0			0.3			1.1	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		7.1			34.8			23.9			25.2	
Lane Group LOS		A			C			C			C	
Approach Delay	7.1			34.8			23.9			25.2		
Approach LOS	A			C			C			C		
Intersection Delay	20.0			Intersection LOS						B		

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)		166	27	68	175		25		65			
% 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 = 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		268			276			120				
Lane Group Capacity		542			930			348				
v/c Ratio		0.49			0.30			0.34				
Green Ratio		0.30			0.64			0.24				
Uniform Delay d_1		23.0			6.5			25.3				
Delay Factor k		0.50			0.50			0.50				
Incremental Delay d_2		3.2			0.8			2.7				
PF Factor		1.000			1.000			1.000				
Control Delay		26.2			7.3			28.0				
Lane Group LOS		C			A			C				
Approach Delay	26.2			7.3			28.0					
Approach LOS	C			A			C					
Intersection Delay	18.7			Intersection LOS			B					

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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	1	1			1	2
Lane Group					LTR		L	T			T	R
Volume (vph)				57	427	268	93	380			123	87
% 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
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				88	0	27	0	0		159	0	0
Lane Width					11.0		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
Minimum Pedestrian Time					25.7			3.2			16.2	

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					863		107	437			138	98
Lane Group Capacity					1163		365	588			620	760
v/c Ratio					0.74		0.29	0.74			0.22	0.13
Green Ratio					0.49		0.38	0.38			0.38	0.38
Uniform Delay d_1					16.5		17.6	21.7			17.0	16.4
Delay Factor k					0.50		0.50	0.50			0.50	0.50
Incremental Delay d_2					4.3		2.0	8.3			0.8	0.4
PF Factor					1.000		1.000	1.000			1.000	1.000
Control Delay					20.8		19.6	29.9			17.9	16.8
Lane Group LOS					C		B	C			B	B
Approach Delay					20.8			27.9			17.4	
Approach LOS					C			C			B	
Intersection Delay		22.6			Intersection LOS						C	

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)		565	309				54		477			
% 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	27			
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		920						217	362			
Lane Group Capacity		1422						522	892			
v/c Ratio		0.65						0.42	0.41			
Green Ratio		0.51						0.36	0.36			
Uniform Delay d_1		14.2						19.1	19.1			
Delay Factor k		0.50						0.50	0.50			
Incremental Delay d_2		2.3						2.4	1.4			
PF Factor		1.000						1.000	1.000			
Control Delay		16.5						21.6	20.4			
Lane Group LOS		B						C	C			
Approach Delay	16.5						20.9					
Approach LOS	B						C					
Intersection Delay	18.2			Intersection LOS						B		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	437	548	57					91	85	158	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 = 51.0	G =	G =	G =	G = 19.0	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	508	703						103	86		197	
Lane Group Capacity	933	1905						390	284		189	
v/c Ratio	0.54	0.37						0.26	0.30		1.04	
Green Ratio	0.64	0.64						0.24	0.24		0.24	
Uniform Delay d_1	8.1	6.9						24.8	25.1		30.5	
Delay Factor k	0.50	0.50						0.50	0.50		0.50	
Incremental Delay d_2	2.3	0.6						1.6	2.7		77.0	
PF Factor	1.000	1.000						1.000	1.000		1.000	
Control Delay	10.3	7.4						26.5	27.8		107.5	
Lane Group LOS	B	A						C	C		F	
Approach Delay	8.6						27.1			107.5		
Approach LOS	A						C			F		
Intersection Delay	23.0			Intersection LOS						C		

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	63	439	296		380	80	31	553	145		518	73
% 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		0.79	0.79
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	9	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	652	373	554		878		748	
Lane Group Capacity	1112	673	1407		1171		1346	
v/c Ratio	0.59	0.55	0.39		0.75		0.56	
Green Ratio	0.44	0.44	0.44		0.43		0.43	
Uniform Delay d_1	18.8	18.4	16.8		21.4		19.0	
Delay Factor k	0.50	0.50	0.50		0.50		0.50	
Incremental Delay d_2	2.3	3.3	0.8		4.4		1.7	
PF Factor	1.000	1.000	1.000		1.000		1.000	
Control Delay	21.1	21.7	17.7		25.8		20.7	
Lane Group LOS	C	C	B		C		C	
Approach Delay	21.3		17.7		25.8		20.7	
Approach LOS	C		B		C		C	
Intersection Delay	21.8		Intersection LOS				C	

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)				244		15		725	361	63	423	
% 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	36	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					305			884	396	74	498	
Lane Group Capacity					480			1538	641	235	1854	
v/c Ratio					0.64			0.57	0.62	0.31	0.27	
Green Ratio					0.31			0.51	0.51	0.58	0.58	
Uniform Delay d_1					26.6			15.2	15.7	10.0	9.5	
Delay Factor k					0.50			0.50	0.50	0.50	0.50	
Incremental Delay d_2					6.3			1.6	4.4	3.5	0.4	
PF Factor					1.000			1.000	1.000	1.000	1.000	
Control Delay					32.9			16.8	20.1	13.5	9.9	
Lane Group LOS					C			B	C	B	A	
Approach Delay					32.9			17.8			10.3	
Approach LOS					C			B			B	
Intersection Delay	18.0			Intersection LOS						B		

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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)	213				304	267		606			492	175
% 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 = 25.0	G = 24.0	G =	G =	G = 25.0	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	318				341	273		689			566	201
Lane Group Capacity	434				454	376		831			473	402
v/c Ratio	0.73				0.75	0.73		0.83			1.20	0.50
Green Ratio	0.28				0.27	0.27		0.28			0.28	0.28
Uniform Delay d_1	29.5				30.3	30.0		30.5			32.5	27.3
Delay Factor k	0.50				0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2	10.5				10.9	11.6		9.4			107.5	4.4
PF Factor	1.000				1.000	1.000		1.000			1.000	1.000
Control Delay	39.9				41.2	41.6		39.9			140.0	31.6
Lane Group LOS	D				D	D		D			F	C
Approach Delay	39.9			41.4			39.9			111.6		
Approach LOS	D			D			D			F		
Intersection Delay	63.3			Intersection LOS						E		

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	ARENA PEAK HOUR	Analysis Year	2005 EXISTING 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	180	9		348	252	9	214	55	172	97	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 = 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		242			378	274		312		202	138	
Lane Group Capacity		542			648	572		605		338	626	
v/c Ratio		0.45			0.58	0.48		0.52		0.60	0.22	
Green Ratio		0.41			0.41	0.41		0.43		0.43	0.43	
Uniform Delay d_1		14.7			15.8	15.0		14.7		15.4	12.6	
Delay Factor k		0.50			0.50	0.50		0.50		0.50	0.50	
Incremental Delay d_2		2.7			3.8	2.9		3.1		7.6	0.8	
PF Factor		1.000			1.000	1.000		1.000		1.000	1.000	
Control Delay		17.4			19.6	17.8		17.8		23.0	13.4	
Lane Group LOS		B			B	B		B		C	B	
Approach Delay	17.4			18.9			17.8			19.1		
Approach LOS	B			B			B			B		
Intersection Delay	18.5			Intersection LOS						B		

FRIDAY CASINO PEAK HOUR

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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)		170	251		152		114					
% 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		540			177		141					
Lane Group Capacity		1332			2248		536					
v/c Ratio		0.41			0.08		0.26					
Green Ratio		0.51			0.51		0.34					
Uniform Delay d_1		10.4			8.6		16.6					
Delay Factor k		0.50			0.50		0.50					
Incremental Delay d_2		0.9			0.1		1.2					
PF Factor		1.000			1.000		1.000					
Control Delay		11.4			8.7		17.8					
Lane Group LOS		B			A		B					
Approach Delay	11.4			8.7			17.8					
Approach LOS	B			A			B					
Intersection Delay	11.9			Intersection LOS			B					

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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)		165	5	8	94		58		110			
% 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		189			120		63		120			
Lane Group Capacity		1119			1983		544		475			
v/c Ratio		0.17			0.06		0.12		0.25			
Green Ratio		0.39			0.51		0.34		0.34			
Uniform Delay d_1		14.1			8.5		15.7		16.5			
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		17.8			
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					

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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	250	1	1	112	12		155	79	6	5	2
% Heavy Vehicles	3	3	3	3	3	3		0	0	36	36	36
PHF	0.72	0.72	0.72	0.93	0.93	0.93		0.89	0.89	0.69	0.69	0.69
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		349			134			263			19	
Lane Group Capacity		1208			650			1250			447	
v/c Ratio		0.29			0.21			0.21			0.04	
Green Ratio		0.41			0.41			0.43			0.43	
Uniform Delay d_1		13.6			13.1			12.6			11.6	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.6			0.7			0.4			0.2	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		14.2			13.8			12.9			11.8	
Lane Group LOS		B			B			B			B	
Approach Delay	14.2			13.8			12.9			11.8		
Approach LOS	B			B			B			B		
Intersection Delay	13.7			Intersection LOS						B		

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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)	183	18	35	17	16	1		394	29		350	39
% 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 = 26.0	G = 19.0	G = 21.0	G =	G = 47.0	G = 14.0	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	208	60		22	22			504			437	
Lane Group Capacity	397	194		406	461			1887			1391	
v/c Ratio	0.52	0.31		0.05	0.05			0.27			0.31	
Green Ratio	0.14	0.14		0.33	0.33			0.43			0.43	
Uniform Delay d_1	61.4	59.5		35.3	35.2			28.0			28.6	
Delay Factor k	0.50	0.50		0.50	0.50			0.50			0.50	
Incremental Delay d_2	4.9	4.1		0.3	0.2			0.3			0.6	
PF Factor	1.000	1.000		1.000	1.000			1.000			1.000	
Control Delay	66.2	63.6		35.5	35.4			28.3			29.2	
Lane Group LOS	E	E		D	D			C			C	
Approach Delay	65.6			35.5			28.3			29.2		
Approach LOS	E			D			C			C		
Intersection Delay	36.9			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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)	42		129				102	476			260	35
% 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 = 26.0	G = 19.0	G =	G =	G = 21.0	G = 47.0	G = 14.0	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	51		157				115	535			383	
Lane Group Capacity	266		234				354	1950			977	
v/c Ratio	0.19		0.67				0.32	0.27			0.39	
Green Ratio	0.17		0.09				0.23	0.61			0.31	
Uniform Delay d_1	54.5		67.3				49.2	14.1			41.7	
Delay Factor k	0.50		0.50				0.50	0.50			0.50	
Incremental Delay d_2	1.6		14.3				2.4	0.3			1.2	
PF Factor	1.000		1.000				1.000	1.000			1.000	
Control Delay	56.1		81.6				51.6	14.5			42.9	
Lane Group LOS	E		F				D	B			D	
Approach Delay	75.3						21.0			42.9		
Approach LOS	E						C			D		
Intersection Delay	36.9			Intersection LOS						D		

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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	290	33	34	160	158	43	224	81	198	183	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		497			216	176	49	350		228	226	
Lane Group Capacity		819			736	732	613	1134		545	1169	
v/c Ratio		0.61			0.29	0.24	0.08	0.31		0.42	0.19	
Green Ratio		0.30			0.30	0.52	0.59	0.39		0.59	0.39	
Uniform Delay d_1		27.0			24.2	11.7	8.0	19.1		9.3	18.2	
Delay Factor k		0.50			0.50	0.50	0.50	0.50		0.50	0.50	
Incremental Delay d_2		3.3			1.0	0.8	0.3	0.7		2.4	0.4	
PF Factor		1.000			1.000	1.000	1.000	1.000		1.000	1.000	
Control Delay		30.3			25.2	12.5	8.2	19.8		11.6	18.5	
Lane Group LOS		C			C	B	A	B		B	B	
Approach Delay		30.3			19.5			18.4			15.1	
Approach LOS		C			B			B			B	
Intersection Delay		21.2			Intersection LOS						C	

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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)	36	172	15	45	152	132	36	180	86	61	123	66
% 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 = 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		348			456		48	355		90	278	
Lane Group Capacity		432			879		452	1029		402	983	
v/c Ratio		0.81			0.52		0.11	0.34		0.22	0.28	
Green Ratio		0.42			0.33		0.47	0.36		0.47	0.36	
Uniform Delay d_1		22.8			24.2		13.3	21.3		13.9	20.8	
Delay Factor k		0.50			0.50		0.50	0.50		0.50	0.50	
Incremental Delay d_2		14.8			2.2		0.5	0.9		1.3	0.7	
PF Factor		1.000			1.000		1.000	1.000		1.000	1.000	
Control Delay		37.5			26.4		13.8	22.2		15.1	21.5	
Lane Group LOS		D			C		B	C		B	C	
Approach Delay	37.5			26.4			21.2			19.9		
Approach LOS	D			C			C			B		
Intersection Delay	26.0			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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			LT	
Volume (vph)	102	192	25	7	185	9	40	55	26	37	104	
% Heavy Vehicles	0	0	0	3	3	3	3	3	3	3	3	
PHF	0.79	0.79	0.79	0.88	0.88	0.88	0.65	0.65	0.65	0.93	0.93	
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	
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	3	100	0	1	100	0	3	100	0	
Lane Width	12.0	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			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 = 37.0	G =	G =	G =	G = 22.0	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	129	271			227			182			152	
Lane Group Capacity	516	1587			1557			755			802	
v/c Ratio	0.25	0.17			0.15			0.24			0.19	
Green Ratio	0.53	0.53			0.53			0.31			0.31	
Uniform Delay d_1	9.0	8.6			8.4			17.8			17.5	
Delay Factor k	0.50	0.50			0.50			0.50			0.50	
Incremental Delay d_2	1.2	0.2			0.2			0.8			0.5	
PF Factor	1.000	1.000			1.000			1.000			1.000	
Control Delay	10.1	8.8			8.6			18.6			18.0	
Lane Group LOS	B	A			A			B			B	
Approach Delay	9.2			8.6			18.6			18.0		
Approach LOS	A			A			B			B		
Intersection Delay	12.2			Intersection LOS						B		

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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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	0
Lane Group	L	LTR	R					T	R	L	LTR	
Volume (vph)	310	60	63					334	71	152	41	43
% Heavy Vehicles	2	2	2					0	0	2	2	2
PHF	0.81	0.81	0.81					0.80	0.80	0.66	0.66	0.66
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	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				0	0	7	0	0	0
Lane Width	11.0	11.0	12.0					12.0	12.0	16.0	10.0	
Parking/Grade/Parking	N	5	N				N	-1	N	N	6	N
Parking/Hour												
Bus Stops/Hour	0	0	0					0	0	0	0	
Minimum Pedestrian Time		15.1						3.2			3.2	

Phasing	EB Only	02	03	04	NB Only	SB Only	07	08
Timing	G = 21.0	G =	G =	G =	G = 26.0	G = 18.0	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	364	97	74					417	80	115	242	
Lane Group Capacity	394	405	295					1063	475	394	610	
v/c Ratio	0.92	0.24	0.25					0.39	0.17	0.29	0.40	
Green Ratio	0.26	0.26	0.26					0.32	0.32	0.22	0.22	
Uniform Delay d_1	28.7	23.2	23.3					20.9	19.3	25.7	26.4	
Delay Factor k	0.50	0.50	0.50					0.50	0.50	0.50	0.50	
Incremental Delay d_2	29.7	1.4	2.0					1.1	0.8	1.9	1.9	
PF Factor	1.000	1.000	1.000					1.000	1.000	1.000	1.000	
Control Delay	58.4	24.6	25.3					22.0	20.0	27.6	28.3	
Lane Group LOS	E	C	C					C	C	C	C	
Approach Delay	47.7						21.7			28.1		
Approach LOS	D						C			C		
Intersection Delay	33.3			Intersection LOS						C		

SHORT REPORT

General Information		Site Information	
Analyst	M. Southern	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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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	62	2	3	58	7	2	1	1			
% Heavy Vehicles	2	2	2	0	0	0	0	0	0			
PHF	0.91	0.91	0.91	0.74	0.74	0.74	0.50	0.50	0.50			
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		15.0			16.0			12.3				

Phasing	EB Only	WB Only	03	04	NB Only	06	07	08
Timing	G = 20.0	G = 10.0	G =	G =	G = 8.5	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 = 55.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		100			91			8				
Lane Group Capacity		1081			587			202				
v/c Ratio		0.09			0.16			0.04				
Green Ratio		0.36			0.18			0.15				
Uniform Delay d_1		11.5			18.9			19.8				
Delay Factor k		0.11			0.11			0.11				
Incremental Delay d_2		0.0			0.1			0.1				
PF Factor		1.000			1.000			1.000				
Control Delay		11.6			19.1			19.9				
Lane Group LOS		B			B			B				
Approach Delay	11.6			19.1			19.9					
Approach LOS	B			B			B					
Intersection Delay	15.3			Intersection LOS			B					

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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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	31	28	9	27	1	41	2	18	1	1	1
% Heavy Vehicles	2	2	2	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	
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		72			53			84			12	
Lane Group Capacity		496			416			665			644	
v/c Ratio		0.15			0.13			0.13			0.02	
Green Ratio		0.30			0.30			0.50			0.50	
Uniform Delay d_1		12.8			12.7			6.7			6.3	
Delay Factor k		0.50			0.50			0.50			0.50	
Incremental Delay d_2		0.6			0.6			0.4			0.1	
PF Factor		1.000			1.000			1.000			1.000	
Control Delay		13.4			13.4			7.1			6.4	
Lane Group LOS		B			B			A			A	
Approach Delay	13.4			13.4			7.1			6.4		
Approach LOS	B			B			A			A		
Intersection Delay	10.6			Intersection LOS			B					

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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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	0	3	0	0	2	1
Lane Group		LTR			LT	R		LTR			LT	R
Volume (vph)	36	67	40	7	59	53	15	300	10	27	56	8
% Heavy Vehicles	1	1	1	3	3	3	1	1	1	4	4	4
PHF	0.70	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)	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	5	0	0	5	0	0	0	0	0	4	0	0
Lane Width		13.0			10.0	13.0		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
Minimum Pedestrian Time		23.7			23.7			21.2			3.2	

Phasing	EW Perm	Peds Only	03	04	NS Perm	06	07	08
Timing	G = 23.0	G = 17.0	G =	G =	G = 24.0	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 = 80.0		

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		204			91	73		406			107	10
Lane Group Capacity		793			804	430		1174			742	424
v/c Ratio		0.26			0.11	0.17		0.35			0.14	0.02
Green Ratio		0.29			0.29	0.29		0.30			0.30	0.30
Uniform Delay d_1		21.9			21.0	21.3		21.9			20.5	19.7
Delay Factor k		0.50			0.50	0.50		0.50			0.50	0.50
Incremental Delay d_2		0.8			0.3	0.9		0.8			0.4	0.1
PF Factor		1.000			1.000	1.000		1.000			1.000	1.000
Control Delay		22.7			21.3	22.2		22.7			20.9	19.8
Lane Group LOS		C			C	C		C			C	B
Approach Delay	22.7			21.7			22.7			20.8		
Approach LOS	C			C			C			C		
Intersection Delay	22.3			Intersection LOS						C		

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	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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			LT	R
Volume (vph)	9	7	9				15	300	10	27	56	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)	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	5	0	0				0	0	0	4	0	0
Lane Width		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
Minimum Pedestrian Time		23.7						21.2			3.2	

Phasing	Peds Only	EB Only	03	04	NS Perm	06	07	08
Timing	G = 23.0	G = 17.0	G =	G =	G = 24.0	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 = 80.0

Lane Group Capacity, Control Delay, and LOS Determination

	EB			WB			NB			SB		
Adjusted Flow Rate		44						406			107	10
Lane Group Capacity		622						1174			742	423
v/c Ratio		0.07						0.35			0.14	0.02
Green Ratio		0.21						0.30			0.30	0.30
Uniform Delay d_1		25.2						21.9			20.5	19.7
Delay Factor k		0.50						0.50			0.50	0.50
Incremental Delay d_2		0.2						0.8			0.4	0.1
PF Factor		1.000						1.000			1.000	1.000
Control Delay		25.4						22.7			20.9	19.8
Lane Group LOS		C						C			C	B
Approach Delay	25.4						22.7			20.8		
Approach LOS	C						C			C		
Intersection Delay	22.5			Intersection LOS						C		

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	11/21/2005	Jurisdiction	CITY OF PITTSBURGH
Time Period	FRIDAY CASINO PEAK HOUR	Analysis Year	2005 EXISTING 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)	1	122	1	1	103	1				1	1	6
% Heavy Vehicles	4	4	4	5	5	5				0	0	0
PHF	0.88	0.88	0.88	0.81	0.81	0.81				0.58	0.58	0.58
Pretimed/Actuated (P/A)	P	P	P	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	6	0	0	6	0	0				0	0	0
Lane Width		11.0			11.0						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	
Minimum Pedestrian Time		3.2			13.2						21.2	

Phasing	EW Perm	02	03	04	SB Only	06	07	08
Timing	G = 38.0	G =	G =	G =	G = 21.0	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		141			129						14	
Lane Group Capacity		1381			1409						377	
v/c Ratio		0.10			0.09						0.04	
Green Ratio		0.54			0.54						0.30	
Uniform Delay d_1		7.7			7.7						17.3	
Delay Factor k		0.50			0.50						0.50	
Incremental Delay d_2		0.1			0.1						0.2	
PF Factor		1.000			1.000						1.000	
Control Delay		7.9			7.8						17.5	
Lane Group LOS		A			A						B	
Approach Delay	7.9			7.8						17.5		
Approach LOS	A			A						B		
Intersection Delay	8.3			Intersection LOS						A		