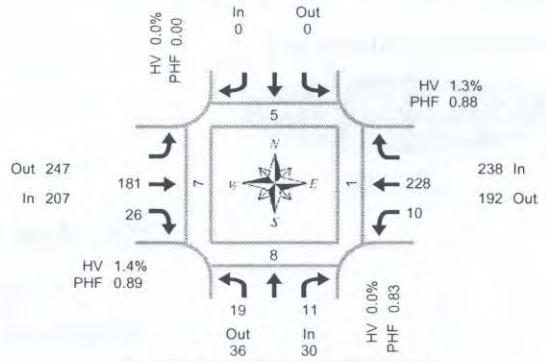
Total Vehicle Summary

All Traffic Data Services Inc.

Mark Skaggs
(206) 251-0300



130th Ave NE & NE 80th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L		R	HV					T	R	HV		L	T		HV		North	South	East	West
4:00 PM	2		4	1					18	1	1		0	32		0	57	0	1	0	2
4:15 PM	3		4	0					31	2	0		4	33		0	77	4	0	0	1
4:30 PM	3		3	0					28	1	2		0	30		2	65	7	1	0	0
4:45 PM	5		4	1					39	4	0		2	45		0	99	0	2	0	0
5:00 PM	5		2	0					42	5	1		0	53		1	107	2	3	0	0
5:15 PM	4		2	0					48	9	0		4	53		1	120	0	1	0	2
5:30 PM	4		5	0					53	5	1		3	65		1	135	2	4	1	5
5:45 PM	6		2	0					38	7	1		3	57		0	113	1	0	0	0
Total Survey	32		26	2					297	34	6		16	368		5	773	16	12	1	10

Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total		In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	30	36	66	0	0	0	0		207	247	454	3	238	192	430	3	475	5	8	1	7
%HV	0.0%				0.0%				1.4%				1.3%				1.3%				
PHF	0.83				0.00				0.89				0.88				0.88				

By Movement	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total
	L		R	Total			Total		T	R	Total		L	T		Total	
Volume	19		11	30			0		181	26	207		10	228		238	475
PHF	0.79		0.55	0.83			0.00		0.85	0.72	0.89		0.63	0.88		0.88	0.88

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L		R	HV					T	R	HV		L	T		HV		North	South	East	West
4:00 PM	13		15	2					116	8	3		6	140		2	298	11	4	0	3
4:15 PM	16		13	1					140	12	3		6	161		3	348	13	6	0	1
4:30 PM	17		11	1					157	19	3		6	181		4	391	9	7	0	2
4:45 PM	18		13	1					182	23	2		9	216		3	461	4	10	1	7
5:00 PM	19		11	0					181	26	3		10	228		3	475	5	8	1	7

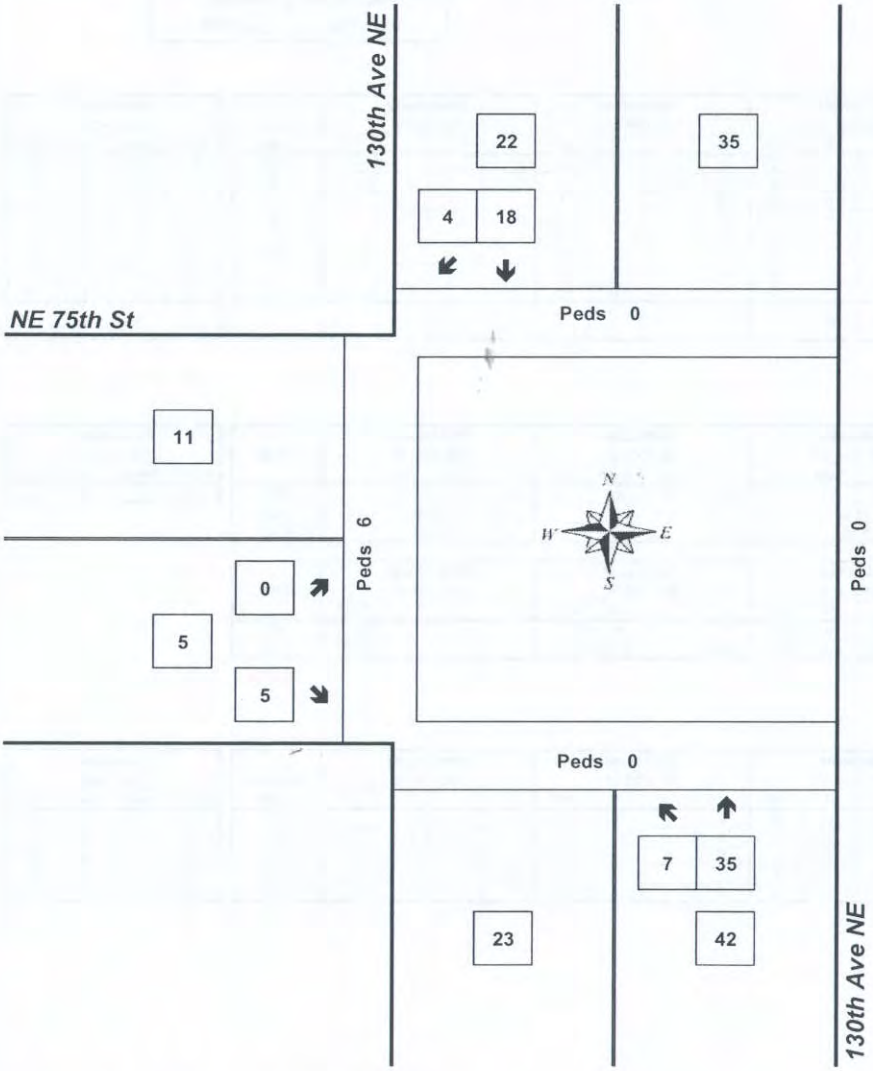
Peak Hour Summary

All Traffic Data Services Inc.

Mark Skaggs
(206) 251-0300

130th Ave NE & NE 75th St

4:45 PM to 5:45 PM
Wednesday, February 22, 2012



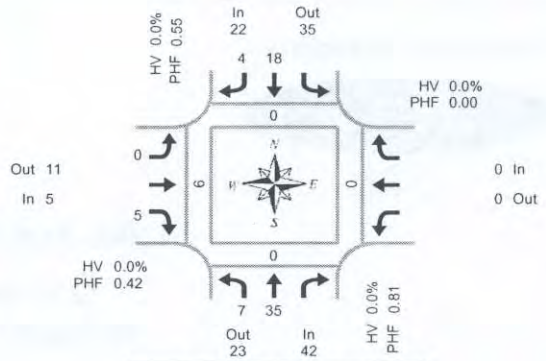
Approach	PHF	HV%	Volume
EB	0.42	0.0%	5
WB	0.00	0.0%	0
NB	0.81	0.0%	42
SB	0.55	0.0%	22
Intersection	0.75	0.0%	69

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.

Mark Skaggs
(206) 251-0300



Peak Hour Summary
4:45 PM to 5:45 PM

130th Ave NE & NE 75th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE			Eastbound NE 75th St				Westbound NE 75th St				Interval Total	Pedestrians Crosswalk			
	L	T		HV	T	R	HV	L		R	HV						North	South	East	West
4:00 PM	2	6		0	3	0	0	1		1	0					13	0	0	0	2
4:15 PM	1	7		0	5	1	0	1		1	0					16	0	0	0	0
4:30 PM	1	2		0	0	0	0	0		1	1					4	0	0	0	1
4:45 PM	1	8		0	4	1	0	0		2	0					16	0	0	0	1
5:00 PM	0	8		0	1	1	0	0		3	0					13	0	0	0	3
5:15 PM	3	10		0	8	2	0	0		0	0					23	0	0	0	0
5:30 PM	3	9		0	5	0	0	0		0	0					17	0	0	0	2
5:45 PM	2	4		0	5	1	0	1		0	0					13	0	0	0	0
Total Survey	13	54		0	31	6	0	3		8	1					115	0	0	0	9

Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound 130th Ave NE				Southbound 130th Ave NE				Eastbound NE 75th St				Westbound NE 75th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total			North	South	East	West
Volume	42	23	65	0	22	35	57	0	5	11	16	0	0	0	0		69	0	0	0	6
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.81				0.55				0.42				0.00				0.75				

By Movement	Northbound 130th Ave NE				Southbound 130th Ave NE			Eastbound NE 75th St				Westbound NE 75th St				Total
	L	T		Total	T	R	Total	L		R	Total				Total	
Volume	7	35		42	18	4	22	0		5	5				0	69
PHF	0.58	0.88		0.81	0.56	0.50	0.55	0.00		0.42	0.42				0.00	0.75

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 130th Ave NE				Southbound 130th Ave NE			Eastbound NE 75th St				Westbound NE 75th St				Interval Total	Pedestrians Crosswalk			
	L	T		HV	T	R	HV	L		R	HV						North	South	East	West
4:00 PM	5	23		0	12	2	0	2		5	1					49	0	0	0	4
4:15 PM	3	25		0	10	3	0	1		7	1					49	0	0	0	5
4:30 PM	5	28		0	13	4	0	0		6	1					56	0	0	0	5
4:45 PM	7	35		0	18	4	0	0		5	0					69	0	0	0	6
5:00 PM	8	31		0	19	4	0	1		3	0					66	0	0	0	5

Peak Hour Summary

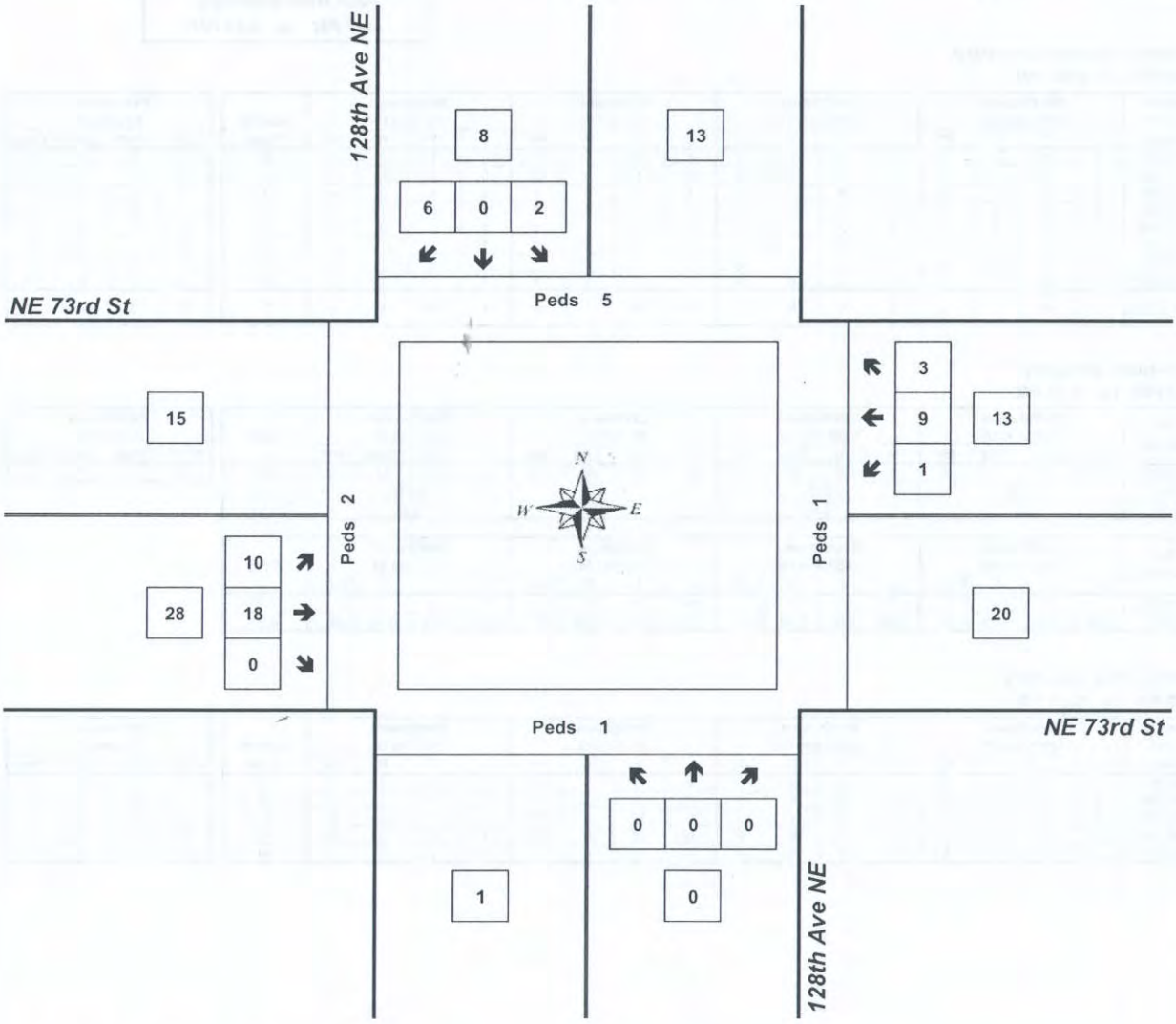
All Traffic Data Services Inc.

Mark Skaggs
(206) 251-0300

128th Ave NE & NE 73rd St

4:45 PM to 5:45 PM

Wednesday, February 22, 2012



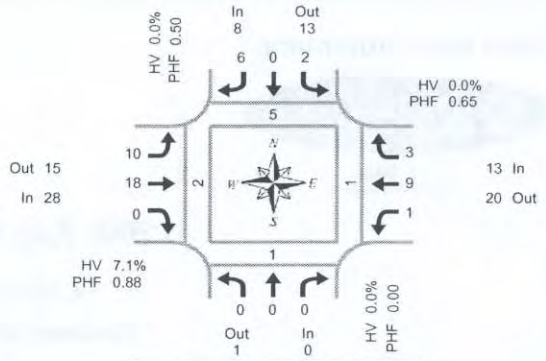
Approach	PHF	HV%	Volume
EB	0.88	7.1%	28
WB	0.65	0.0%	13
NB	0.00	0.0%	0
SB	0.50	0.0%	8
Intersection	0.94	4.1%	49

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc.

Mark Skaggs
(206) 251-0300



128th Ave NE & NE 73rd St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

Peak Hour Summary
4:45 PM to 5:45 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	0	0	0	1	0	1	0	4	2	0	1	0	1	1	1	10	4	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	4	1	0	1	1
4:45 PM	0	0	0	0	0	0	1	0	3	3	0	0	0	4	1	0	12	1	0	1	1
5:00 PM	0	0	0	0	2	0	2	0	3	5	0	1	0	1	0	0	13	2	0	0	1
5:15 PM	0	0	0	0	0	0	3	0	2	4	0	0	1	1	1	0	12	1	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	2	6	0	1	0	3	1	0	12	1	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	3	2	0	1	0	1	1	0	7	3	4	0	0
Total Survey	0	0	0	0	3	0	8	0	18	23	1	4	1	14	5	1	73	13	5	2	3

Peak Hour Summary
4:45 PM to 5:45 PM

By Approach	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	0	1	1	0	8	13	21	0	28	15	43	2	13	20	33	0	49
%HV	0.0%				0.0%				7.1%				0.0%				4.1%
PHF	0.00				0.50				0.88				0.65				0.94

Pedestrians Crosswalk			
North	South	East	West
5	1	1	2

By Movement	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	0	0	0	0	2	0	6	8	10	18	0	28	1	9	3	13	49
PHF	0.00	0.00	0.00	0.00	0.25	0.00	0.50	0.50	0.83	0.75	0.00	0.88	0.25	0.56	0.75	0.65	0.94

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 128th Ave NE				Southbound 128th Ave NE				Eastbound NE 73rd St				Westbound NE 73rd St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	0	0	0	0	1	0	3	0	8	6	1	1	0	8	2	1	29	6	0	2	2
4:15 PM	0	0	0	0	2	0	4	0	7	9	1	1	0	8	1	0	32	4	0	2	3
4:30 PM	0	0	0	0	2	0	7	0	9	12	1	1	1	7	2	0	41	5	1	2	3
4:45 PM	0	0	0	0	2	0	6	0	10	18	0	2	1	9	3	0	49	5	1	1	2
5:00 PM	0	0	0	0	2	0	5	0	10	17	0	3	1	6	3	0	44	7	5	0	1

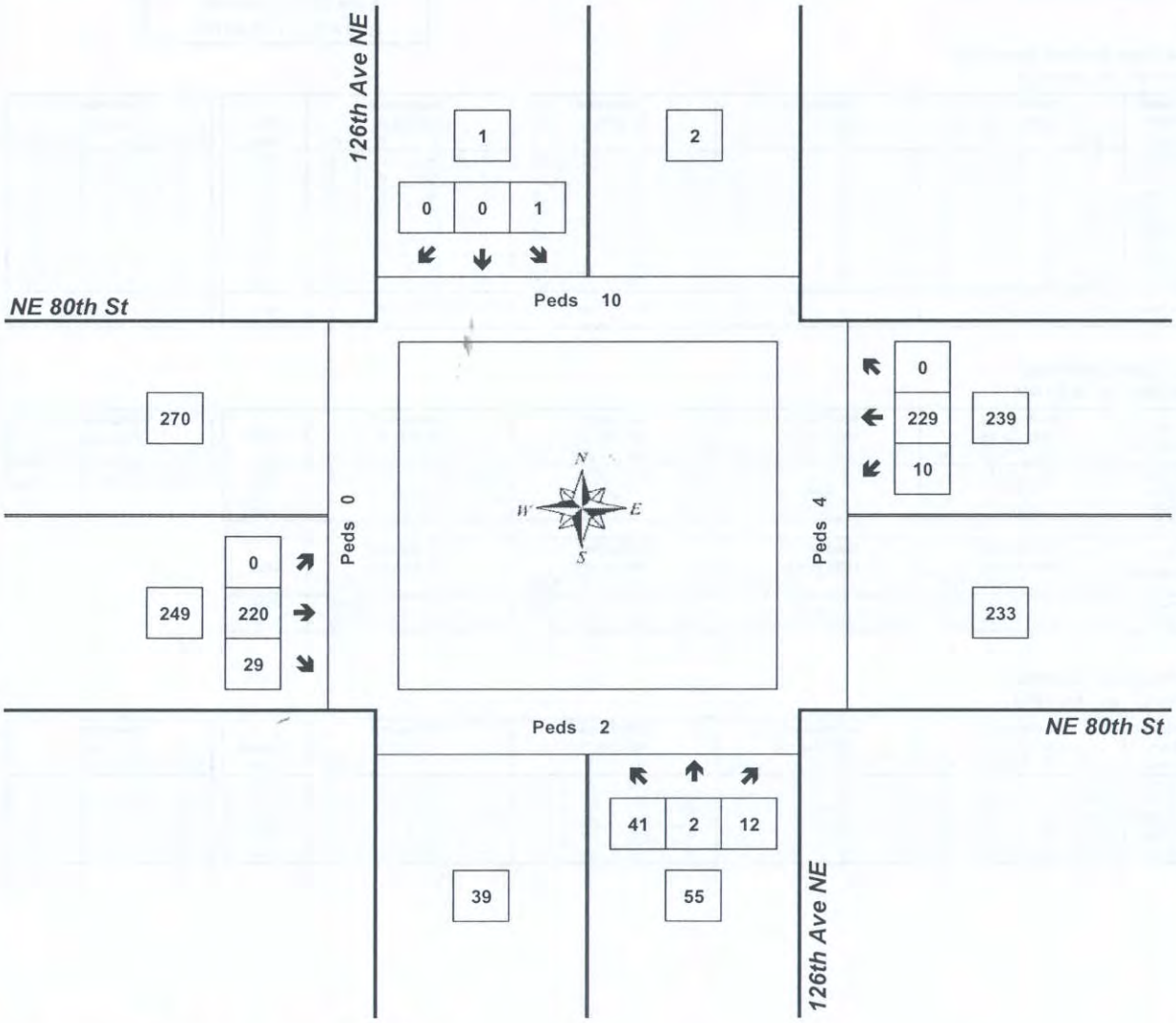
Peak Hour Summary

All Traffic Data Services Inc.

Mark Skaggs
(206) 251-0300

126th Ave NE & NE 80th St

5:00 PM to 6:00 PM
Wednesday, February 22, 2012



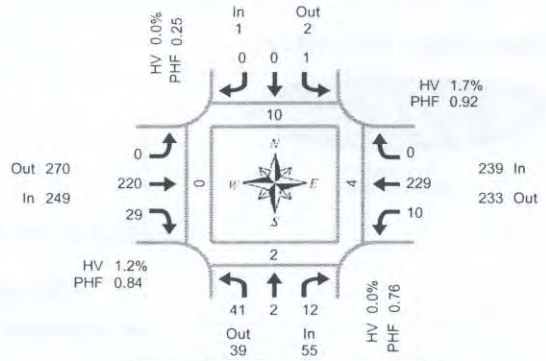
Approach	PHF	HV%	Volume
EB	0.84	1.2%	249
WB	0.92	1.7%	239
NB	0.76	0.0%	55
SB	0.25	0.0%	1
Intersection	0.89	1.3%	544

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary

All Traffic Data Services Inc

Mark Skaggs
(206) 251-0300



Peak Hour Summary
5:00 PM to 6:00 PM

126th Ave NE & NE 80th St

Wednesday, February 22, 2012
4:00 PM to 6:00 PM

15-Minute Interval Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	8	0	1	0	0	0	0	0	0	19	6	2	1	31	0	0	66	0	2	0	0
4:15 PM	3	0	3	0	0	0	0	0	0	37	4	1	1	42	0	1	90	2	0	1	1
4:30 PM	7	0	2	1	0	0	0	0	0	30	5	1	4	30	0	0	78	4	0	0	0
4:45 PM	10	0	2	0	0	0	0	0	0	44	5	0	1	43	0	1	105	2	0	2	0
5:00 PM	10	2	3	0	1	0	0	0	0	53	9	0	3	61	0	0	142	0	0	0	0
5:15 PM	14	0	4	0	0	0	0	0	0	67	7	1	5	55	0	1	152	4	1	0	0
5:30 PM	8	0	1	0	0	0	0	0	0	61	6	1	1	64	0	2	141	2	1	2	0
5:45 PM	9	0	4	0	0	0	0	0	0	39	7	1	1	49	0	1	109	4	0	2	0
Total Survey	69	2	20	1	1	0	0	0	0	350	49	7	17	375	0	6	883	18	4	7	1

Peak Hour Summary
5:00 PM to 6:00 PM

By Approach	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total	Pedestrians Crosswalk			
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV		North	South	East	West
Volume	55	39	94	0	1	2	3	0	249	270	519	3	239	233	472	4	544	10	2	4	0
%HV	0.0%				0.0%				1.2%				1.7%				1.3%				
PHF	0.76				0.25				0.84				0.92				0.89				

By Movement	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	41	2	12	55	1	0	0	1	0	220	29	249	10	229	0	239	544
PHF	0.73	0.25	0.75	0.76	0.25	0.00	0.00	0.25	0.00	0.82	0.81	0.84	0.50	0.89	0.00	0.92	0.89

Rolling Hour Summary
4:00 PM to 6:00 PM

Interval Start Time	Northbound 126th Ave NE				Southbound 126th Ave NE				Eastbound NE 80th St				Westbound NE 80th St				Interval Total	Pedestrians Crosswalk			
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV		North	South	East	West
4:00 PM	28	0	8	1	0	0	0	0	0	130	20	4	7	146	0	2	339	8	2	3	1
4:15 PM	30	2	10	1	1	0	0	0	0	164	23	2	9	176	0	2	415	8	0	3	1
4:30 PM	41	2	11	1	1	0	0	0	0	194	26	2	13	189	0	2	477	10	1	2	0
4:45 PM	42	2	10	0	1	0	0	0	0	225	27	2	10	223	0	4	540	8	2	4	0
5:00 PM	41	2	12	0	1	0	0	0	0	220	29	3	10	229	0	4	544	10	2	4	0

Prepared for: **Transpo Group**

Traffic Count Consultants, Inc.

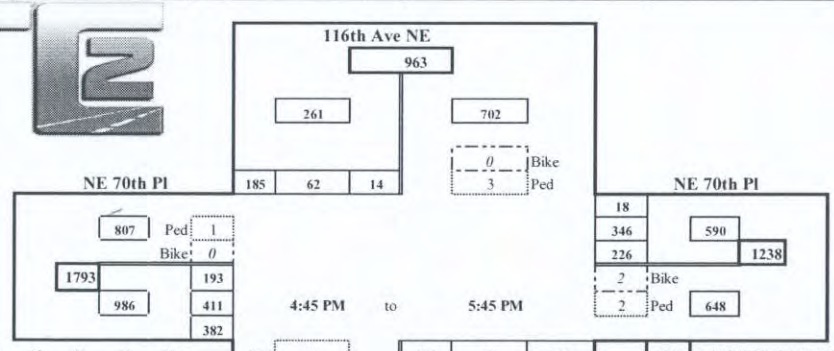
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2-inc.com

WBE/DBE

Intersection: 116th Ave NE & NE 70th Pl
Location: Kirkland, Washington

Date of Count: Wed 02/13/2013
Checked By: Jess

Time Interval Ending at	From North on (SB) 116th Ave NE				From South on (NB) 116th Ave NE				From East on (WB) NE 70th Pl				From West on (EB) NE 70th Pl				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	4	28	20	6	81	100	44	3	42	81	4	3	29	95	104	632
4:30 P	0	5	15	20	5	93	117	46	0	46	77	11	2	36	111	90	667
4:45 P	2	5	16	42	5	66	95	60	1	56	83	5	2	35	93	87	643
5:00 P	0	1	18	62	2	68	123	56	0	52	75	3	3	47	85	98	688
5:15 P	1	5	10	42	7	67	111	62	0	65	75	3	2	56	105	84	685
5:30 P	1	3	15	45	2	66	125	55	0	60	96	7	1	43	115	103	733
5:45 P	1	5	19	36	5	75	132	50	0	49	100	5	2	47	106	97	721
6:00 P	1	3	23	42	4	50	91	78	0	61	113	2	1	31	102	85	681
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	7	31	144	309	36	566	894	451	4	431	700	40	16	324	812	748	5450
Peak Hour: 4:45 PM to 5:45 PM																	
Total	3	14	62	185	16	276	491	223	0	226	346	18	8	193	411	382	2827
Approach	261				990				590				986				2827
%HV	[illegible]				[illegible]				[illegible]				0.8%				[illegible]
PHF	0.81				0.96				0.90				0.94				0.96



PEDs Across:	N	S	E	W	
INT 01	1	5			6
INT 02	1	1		2	4
INT 03			1		1
INT 04					0
INT 05	1	7			8
INT 06	2	3	2	1	8
INT 07		1			1
INT 08	2				2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	7	17	3	3	30

Ped 11
Bike 1

276 491 223

670 990

1660

116th Ave NE

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03				1	1
INT 04					0
INT 05					0
INT 06		1	1		2
INT 07			1		1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	1	2	1	4

2932 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.94	0.8%
Check	WB	0.90	n/a
In: 2827	NB	0.96	1.6%
Out: 2827	SB	0.81	1.1%
	T Int.	0.96	1.0%

Conditions:

Special Notes

TPG13026M_01

Appendix C: LOS Definitions

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Appendix D: LOS Worksheets

HCM Unsignalized Intersection Capacity Analysis
5: 128th Ave NE & NE 80th St

4/20/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	150	5	0	140	45	5	0	0	60	0	60
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	86	185	6	0	173	56	6	0	0	74	0	74
Pedestrians					12			11			30	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	258			202			647	631	211	604	606	231
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	258			202			647	631	211	604	606	231
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			98	100	100	80	100	91
cM capacity (veh/h)	1262			1328			321	361	818	363	368	784

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	278	228	6	148
Volume Left	86	0	6	74
Volume Right	6	56	0	74
cSH	1262	1328	321	496
Volume to Capacity	0.07	0.00	0.02	0.30
Queue Length 95th (ft)	6	0	1	31
Control Delay (s)	2.9	0.0	16.5	15.3
Lane LOS	A		C	C
Approach Delay (s)	2.9	0.0	16.5	15.3
Approach LOS			C	C

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: 128th Ave NE & NE 80th St

4/20/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	215	0	0	135	40	5	0	0	60	0	85
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	118	253	0	0	159	47	6	0	0	71	0	100
Pedestrians					15			32			25	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			3			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	231			285			803	751	300	711	728	207
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	231			285			803	751	300	711	728	207
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			100			97	100	100	76	100	88
cM capacity (veh/h)	1303			1238			233	296	715	299	301	808

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	371	206	6	171
Volume Left	118	0	6	71
Volume Right	0	47	0	100
cSH	1303	1238	233	474
Volume to Capacity	0.09	0.00	0.03	0.36
Queue Length 95th (ft)	7	0	2	40
Control Delay (s)	3.1	0.0	20.8	16.8
Lane LOS	A		C	C
Approach Delay (s)	3.1	0.0	20.8	16.8
Approach LOS			C	C

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: 128th Ave NE & NE 75th St

4/20/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	5	5	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	7	7	7	7	7	7
Pedestrians	2				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	33	12	15			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	33	12	15			
tC, single (s)	6.7	6.5	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.3			
p0 queue free %	99	99	100			
cM capacity (veh/h)	901	984	1555			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	13	13
Volume Left	7	7	0
Volume Right	7	0	7
cSH	940	1555	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.9	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	3.7	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	5	5	5	5	60	15	10	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	5	5	5	5	65	16	11	27	0
Pedestrians		1			5			1			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	146	147	29	147	139	82	28			87		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146	147	29	147	139	82	28			87		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	99	99	99	99	99	99	100			99		
cM capacity (veh/h)	805	736	1050	803	744	975	1577			1479		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	16	87	38
Volume Left	5	5	5	11
Volume Right	5	5	16	0
cSH	844	830	1577	1479
Volume to Capacity	0.02	0.02	0.00	0.01
Queue Length 95th (ft)	1	2	0	1
Control Delay (s)	9.3	9.4	0.5	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.4	0.5	2.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	190	0	0	205	45	0	5	0	25	5	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	204	0	0	220	48	0	5	0	27	5	38
Pedestrians					3			6			4	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					0			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	273			210			571	558	213	534	534	249
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	273			210			571	558	213	534	534	249
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	99	100	94	99	95
cM capacity (veh/h)	1292			1354			397	424	826	437	435	787

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	242	269	5	70
Volume Left	38	0	0	27
Volume Right	0	48	0	38
cSH	1292	1354	424	575
Volume to Capacity	0.03	0.00	0.01	0.12
Queue Length 95th (ft)	2	0	1	10
Control Delay (s)	1.4	0.0	13.6	12.1
Lane LOS	A		B	B
Approach Delay (s)	1.4	0.0	13.6	12.1
Approach LOS			B	B

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	180	25	10	230	20	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	205	28	11	261	23	11
Pedestrians	7			1	8	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			0	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			241		518	228
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			241		518	228
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1323		510	810

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	233	273	34
Volume Left	0	11	23
Volume Right	28	0	11
cSH	1700	1323	582
Volume to Capacity	0.14	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	5	5	35	20	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	7	7	47	27	7
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	96	36	39			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	36	39			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	900	1037	1576			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	53	33
Volume Left	0	7	0
Volume Right	7	0	7
cSH	1037	1576	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	0.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	405	380	225	345	20	275	485	220	15	60	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	1787	1866		1787	1881	1599	1770	1651	
Flt Permitted	0.29	1.00	1.00	0.23	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	556	1900	1615	425	1866		1787	1881	1599	1770	1651	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	198	422	396	234	359	21	286	505	229	16	62	193
RTOR Reduction (vph)	0	0	229	0	3	0	0	0	146	0	145	0
Lane Group Flow (vph)	198	422	167	234	377	0	286	505	83	16	110	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	21.8	16.7	28.9	23.8	17.7		12.2	24.9	24.9	0.8	13.5	
Effective Green, g (s)	21.8	16.7	28.9	23.8	17.7		12.2	24.9	24.9	0.8	13.5	
Actuated g/C Ratio	0.32	0.24	0.42	0.35	0.26		0.18	0.36	0.36	0.01	0.20	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	2.0	2.0	0.2	0.2	
Lane Grp Cap (vph)	269	463	799	268	482		318	683	581	20	325	
v/s Ratio Prot	0.05	0.22	0.04	c0.08	0.20		c0.16	c0.27		0.01	c0.07	
v/s Ratio Perm	0.18		0.07	c0.22					0.05			
v/c Ratio	0.74	0.91	0.21	0.87	0.78		0.90	0.74	0.14	0.80	0.34	
Uniform Delay, d1	19.2	25.2	12.6	18.9	23.6		27.5	19.0	14.6	33.8	23.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.7	21.7	0.0	24.7	7.5		25.8	3.6	0.0	105.9	0.2	
Delay (s)	27.9	46.9	12.6	43.6	31.1		53.4	22.6	14.7	139.6	23.9	
Level of Service	C	D	B	D	C		D	C	B	F	C	
Approach Delay (s)		29.8			35.9			29.5			30.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	68.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	220	30	10	230	0	40	5	10	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	247	34	11	258	0	45	6	11	6	0	0
Pedestrians					4			2			10	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	268			283			547	557	270	573	574	268
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	268			283			547	557	270	573	574	268
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			90	99	99	99	100	100
cM capacity (veh/h)	1290			1277			444	433	770	412	424	769

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	281	270	62	6
Volume Left	0	11	45	6
Volume Right	34	0	11	0
cSH	1290	1277	480	412
Volume to Capacity	0.00	0.01	0.13	0.01
Queue Length 95th (ft)	0	1	11	1
Control Delay (s)	0.0	0.4	13.6	13.9
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.4	13.6	13.9
Approach LOS			B	B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: 128th Ave NE & NE 80th St

4/20/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	155	5	0	145	45	5	0	0	60	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	86	191	6	0	179	56	6	0	0	74	0	80
Pedestrians					12			11			30	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			3	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	265			209			665	643	217	616	618	237
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	265			209			665	643	217	616	618	237
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			98	100	100	79	100	90
cM capacity (veh/h)	1256			1321			308	355	812	356	362	777

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	284	235	6	154
Volume Left	86	0	6	74
Volume Right	6	56	0	80
cSH	1256	1321	308	496
Volume to Capacity	0.07	0.00	0.02	0.31
Queue Length 95th (ft)	6	0	2	33
Control Delay (s)	2.9	0.0	16.9	15.5
Lane LOS	A		C	C
Approach Delay (s)	2.9	0.0	16.9	15.5
Approach LOS			C	C

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: 128th Ave NE & NE 80th St

4/20/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	220	0	0	140	40	5	0	0	60	0	100
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	129	259	0	0	165	47	6	0	0	71	0	118
Pedestrians					15			32			25	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			3			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	237			291			856	786	306	746	763	213
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	237			291			856	786	306	746	763	213
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			100			97	100	100	75	100	85
cM capacity (veh/h)	1297			1231			207	280	710	281	284	802

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	388	212	6	188
Volume Left	129	0	6	71
Volume Right	0	47	0	118
cSH	1297	1231	207	473
Volume to Capacity	0.10	0.00	0.03	0.40
Queue Length 95th (ft)	8	0	2	47
Control Delay (s)	3.3	0.0	22.9	17.6
Lane LOS	A		C	C
Approach Delay (s)	3.3	0.0	22.9	17.6
Approach LOS			C	C

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: 128th Ave NE & NE 75th St

4/20/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	5	5	5	5	5	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	7	7	7	7	7	7
Pedestrians	2				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	33	12	15			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	33	12	15			
tC, single (s)	6.7	6.5	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.3			
p0 queue free %	99	99	100			
cM capacity (veh/h)	901	984	1555			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	13	13	13
Volume Left	7	7	0
Volume Right	7	0	7
cSH	940	1555	1700
Volume to Capacity	0.01	0.00	0.01
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.9	3.7	0.0
Lane LOS	A	A	
Approach Delay (s)	8.9	3.7	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	5	5	5	5	60	15	10	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	5	5	5	5	65	16	11	27	0
Pedestrians		1			5			1			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	146	147	29	147	139	82	28			87		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	146	147	29	147	139	82	28			87		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	99	99	99	99	99	99	100			99		
cM capacity (veh/h)	805	736	1050	803	744	975	1577			1479		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	16	87	38
Volume Left	5	5	5	11
Volume Right	5	5	16	0
cSH	844	830	1577	1479
Volume to Capacity	0.02	0.02	0.00	0.01
Queue Length 95th (ft)	1	2	0	1
Control Delay (s)	9.3	9.4	0.5	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.3	9.4	0.5	2.2
Approach LOS	A	A		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	195	0	0	210	45	0	5	0	25	5	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	210	0	0	226	48	0	5	0	27	5	38
Pedestrians					3			6			4	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					0			1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	278			216			581	569	219	545	545	254
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	278			216			581	569	219	545	545	254
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			100			100	99	100	94	99	95
cM capacity (veh/h)	1286			1347			390	418	820	430	429	782

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	247	274	5	70
Volume Left	38	0	0	27
Volume Right	0	48	0	38
cSH	1286	1347	418	567
Volume to Capacity	0.03	0.00	0.01	0.12
Queue Length 95th (ft)	2	0	1	10
Control Delay (s)	1.4	0.0	13.7	12.2
Lane LOS	A		B	B
Approach Delay (s)	1.4	0.0	13.7	12.2
Approach LOS			B	B

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	185	25	10	235	20	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	210	28	11	267	23	11
Pedestrians	7			1	8	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			0	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			247		529	233
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			247		529	233
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	99
cM capacity (veh/h)			1316		503	805

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	239	278	34
Volume Left	0	11	23
Volume Right	28	0	11
cSH	1700	1316	575
Volume to Capacity	0.14	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	11.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.7
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	30.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	5	5	35	20	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	7	7	47	27	7
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	1					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	96	36	39			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96	36	39			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	100			
cM capacity (veh/h)	900	1037	1576			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	7	53	33
Volume Left	0	7	0
Volume Right	7	0	7
cSH	1037	1576	1700
Volume to Capacity	0.01	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.5	0.9	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	0.9	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	225	30	10	235	0	40	5	10	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	253	34	11	264	0	45	6	11	6	0	0
Pedestrians					4			2			10	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	274			289			558	568	276	584	585	274
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	274			289			558	568	276	584	585	274
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			90	99	99	99	100	100
cM capacity (veh/h)	1284			1271			436	427	764	405	418	763

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	287	275	62	6
Volume Left	0	11	45	6
Volume Right	34	0	11	0
cSH	1284	1271	472	405
Volume to Capacity	0.00	0.01	0.13	0.01
Queue Length 95th (ft)	0	1	11	1
Control Delay (s)	0.0	0.4	13.8	14.0
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.4	13.8	14.0
Approach LOS			B	B

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	31.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	415	390	230	355	20	285	500	225	15	60	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	1787	1866		1787	1881	1599	1770	1650	
Flt Permitted	0.33	1.00	1.00	0.21	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	621	1900	1615	388	1866		1787	1881	1599	1770	1650	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	203	432	406	240	370	21	297	521	234	16	62	198
RTOR Reduction (vph)	0	0	225	0	3	0	0	0	150	0	153	0
Lane Group Flow (vph)	203	432	181	240	388	0	297	521	84	16	107	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	21.5	17.4	30.7	25.5	19.4		13.3	24.6	24.6	0.6	11.9	
Effective Green, g (s)	21.5	17.4	30.7	25.5	19.4		13.3	24.6	24.6	0.6	11.9	
Actuated g/C Ratio	0.31	0.25	0.45	0.37	0.28		0.19	0.36	0.36	0.01	0.17	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	2.0	2.0	0.2	0.2	
Lane Grp Cap (vph)	265	481	839	268	526		345	673	572	15	285	
v/s Ratio Prot	0.05	0.23	0.04	c0.08	0.21		0.17	c0.28		0.01	c0.06	
v/s Ratio Perm	0.19		0.07	c0.25					0.05			
v/c Ratio	0.77	0.90	0.22	0.90	0.74		0.86	0.77	0.15	1.07	0.38	
Uniform Delay, d1	20.7	24.8	11.6	18.2	22.3		26.8	19.6	14.9	34.1	25.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	11.3	18.8	0.0	28.7	4.6		18.6	5.1	0.0	255.5	0.3	
Delay (s)	31.9	43.6	11.7	46.9	27.0		45.4	24.6	15.0	289.5	25.4	
Level of Service	C	D	B	D	C		D	C	B	F	C	
Approach Delay (s)		28.9			34.6			28.4			40.7	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
5: 128th Ave NE & NE 80th St

4/20/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	155	9	3	145	45	13	6	8	60	3	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Hourly flow rate (vph)	86	191	11	4	179	56	16	7	10	74	4	80
Pedestrians					12			11			30	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			1			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	265			213			677	653	220	640	631	237
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	265			213			677	653	220	640	631	237
tC, single (s)	4.1			4.2			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			95	98	99	78	99	90
cM capacity (veh/h)	1256			1315			300	349	809	333	355	777

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	289	238	33	158
Volume Left	86	4	16	74
Volume Right	11	56	10	80
cSH	1256	1315	384	470
Volume to Capacity	0.07	0.00	0.09	0.34
Queue Length 95th (ft)	6	0	7	37
Control Delay (s)	2.9	0.1	15.3	16.5
Lane LOS	A	A	C	C
Approach Delay (s)	2.9	0.1	15.3	16.5
Approach LOS			C	C

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
5: 128th Ave NE & NE 80th St

4/20/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	110	220	8	8	140	40	10	4	4	60	6	100
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	129	259	9	9	165	47	12	5	5	71	7	118
Pedestrians					15			32			25	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					1			3			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	237			300			883	810	311	776	791	213
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	237			300			883	810	311	776	791	213
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.2	6.6	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			99			94	98	99	73	97	85
cM capacity (veh/h)	1297			1222			194	269	706	261	271	802

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	398	221	21	195
Volume Left	129	9	12	71
Volume Right	9	47	5	118
cSH	1297	1222	250	441
Volume to Capacity	0.10	0.01	0.08	0.44
Queue Length 95th (ft)	8	1	7	56
Control Delay (s)	3.3	0.4	20.7	19.5
Lane LOS	A	A	C	C
Approach Delay (s)	3.3	0.4	20.7	19.5
Approach LOS			C	C

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
1: 128th Ave NE & NE 75th St

4/20/2013

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	7	11	15	5	5	9
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	9	15	20	7	7	12
Pedestrians	2				1	
Lane Width (ft)	12.0				12.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	0				0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	62	15	21			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62	15	21			
tC, single (s)	6.7	6.5	4.2			
tC, 2 stage (s)						
tF (s)	3.8	3.6	2.3			
p0 queue free %	99	99	99			
cM capacity (veh/h)	858	980	1548			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	24	27	19
Volume Left	9	20	0
Volume Right	15	0	12
cSH	929	1548	1700
Volume to Capacity	0.03	0.01	0.01
Queue Length 95th (ft)	2	1	0
Control Delay (s)	9.0	5.5	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	5.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
3: 126th Ave NE & NE 73rd St

4/20/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	5	5	11	5	5	5	60	25	10	25	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	5	5	12	5	5	5	65	27	11	27	0
Pedestrians		1			5			1			4	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	152	158	29	153	145	88	28			97		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	152	158	29	153	145	88	28			97		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.3		
p0 queue free %	99	99	99	98	99	99	100			99		
cM capacity (veh/h)	798	726	1050	796	739	969	1577			1465		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	16	23	98	38
Volume Left	5	12	5	11
Volume Right	5	5	27	0
cSH	837	816	1577	1465
Volume to Capacity	0.02	0.03	0.00	0.01
Queue Length 95th (ft)	1	2	0	1
Control Delay (s)	9.4	9.5	0.4	2.2
Lane LOS	A	A	A	A
Approach Delay (s)	9.4	9.5	0.4	2.2
Approach LOS	A	A		

Intersection Summary				
Average Delay		2.8		
Intersection Capacity Utilization		17.8%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	195	8	8	210	45	5	9	4	25	11	35
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	38	210	9	9	226	48	5	10	4	27	12	38
Pedestrians					3			6			4	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	278			224			606	591	223	573	571	254
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	278			224			606	591	223	573	571	254
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			99			99	98	99	93	97	95
cM capacity (veh/h)	1286			1338			369	404	815	404	412	782

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	256	283	19	76
Volume Left	38	9	5	27
Volume Right	9	48	4	38
cSH	1286	1338	442	533
Volume to Capacity	0.03	0.01	0.04	0.14
Queue Length 95th (ft)	2	0	3	12
Control Delay (s)	1.4	0.3	13.5	12.9
Lane LOS	A	A	B	B
Approach Delay (s)	1.4	0.3	13.5	12.9
Approach LOS			B	B

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	40.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	191	25	10	241	20	10
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	217	28	11	274	23	11
Pedestrians	7			1	8	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			0	1	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			253		543	240
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			253		543	240
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		95	99
cM capacity (veh/h)			1309		494	798

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	245	285	34
Volume Left	0	11	23
Volume Right	28	0	11
cSH	1700	1309	566
Volume to Capacity	0.14	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	11.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	11.8
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	0	7	9	35	20	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	0	9	12	47	27	7
Pedestrians	6					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	107	36	39			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	107	36	39			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	99			
cM capacity (veh/h)	885	1037	1576			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	9	59	33
Volume Left	0	12	0
Volume Right	9	0	7
cSH	1037	1576	1700
Volume to Capacity	0.01	0.01	0.02
Queue Length 95th (ft)	1	1	0
Control Delay (s)	8.5	1.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.5	1.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	5	5	10	14	8	10
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	7	7	13	19	11	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	32				43	23
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				43	23
tC, single (s)	4.4				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.5				3.5	3.3
p0 queue free %	100				99	99
cM capacity (veh/h)	1402				964	1054

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	13	32	24
Volume Left	7	0	11
Volume Right	0	19	13
cSH	1402	1700	1012
Volume to Capacity	0.00	0.02	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	3.8	0.0	8.6
Lane LOS	A		A
Approach Delay (s)	3.8	0.0	8.6
Approach LOS			A

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	233	30	10	240	0	40	5	10	5	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	262	34	11	270	0	45	6	11	6	0	0
Pedestrians					4			2			10	
Lane Width (ft)					12.0			12.0			12.0	
Walking Speed (ft/s)					4.0			4.0			4.0	
Percent Blockage					0			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	280			298			573	583	285	599	600	280
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	280			298			573	583	285	599	600	280
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			99			89	99	99	99	100	100
cM capacity (veh/h)	1278			1262			427	419	755	396	410	758

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	296	281	62	6
Volume Left	0	11	45	6
Volume Right	34	0	11	0
cSH	1278	1262	462	396
Volume to Capacity	0.00	0.01	0.13	0.01
Queue Length 95th (ft)	0	1	11	1
Control Delay (s)	0.0	0.4	14.0	14.2
Lane LOS		A	B	B
Approach Delay (s)	0.0	0.4	14.0	14.2
Approach LOS			B	B

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	32.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	195	421	390	232	359	20	285	500	229	15	60	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	1787	1866		1787	1881	1599	1770	1650	
Flt Permitted	0.31	1.00	1.00	0.20	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	595	1900	1615	378	1866		1787	1881	1599	1770	1650	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	203	439	406	242	374	21	297	521	239	16	62	198
RTOR Reduction (vph)	0	0	228	0	3	0	0	0	151	0	149	0
Lane Group Flow (vph)	203	439	178	242	392	0	297	521	88	16	111	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA		Prot	NA	Perm	Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8					2			
Actuated Green, G (s)	22.0	17.9	31.1	26.0	19.9		13.2	26.1	26.1	0.7	13.6	
Effective Green, g (s)	22.0	17.9	31.1	26.0	19.9		13.2	26.1	26.1	0.7	13.6	
Actuated g/C Ratio	0.31	0.25	0.44	0.37	0.28		0.19	0.37	0.37	0.01	0.19	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)	0.2	0.2	0.2	0.2	0.2		0.2	2.0	2.0	0.2	0.2	
Lane Grp Cap (vph)	254	480	823	260	524		333	693	589	17	316	
v/s Ratio Prot	0.05	0.23	0.04	c0.08	0.21		0.17	c0.28		0.01	c0.07	
v/s Ratio Perm	0.20		0.07	c0.26					0.06			
v/c Ratio	0.80	0.91	0.22	0.93	0.75		0.89	0.75	0.15	0.94	0.35	
Uniform Delay, d1	21.8	25.7	12.3	19.6	23.2		28.1	19.5	14.9	35.0	24.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.0	21.6	0.0	37.1	5.1		24.0	4.1	0.0	187.2	0.2	
Delay (s)	36.8	47.3	12.3	56.7	28.3		52.1	23.6	15.0	222.2	25.0	
Level of Service	D	D	B	E	C		D	C	B	F	C	
Approach Delay (s)		31.7			39.1			29.7			36.4	
Approach LOS		C			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	70.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group